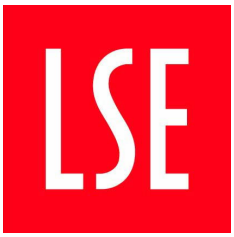
Essays in Political Economy and Voting Behaviour



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Declaration

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Abstract

This thesis explores how political preferences are shaped by institutions, economic conditions, and personality. Each chapter is a distinct contribution and provides a different perspective on the formation of political preferences and, ultimately, voting behaviour. These different approaches relate to the fields of comparative political economy, behavioural economics, and political psychology. Methodologically, this thesis is empirically applied and the results of these separate enquiries into political preferences are grounded in statistical analysis. A first substantive chapter introduces a median voter data set that provides insight into the ideological position of the electoral centre in over 50 democracies. A second chapter uses this new data and studies cross-national voting behaviour in 18 Western democracies over 1960-2003. It is found that electoral behaviour is closely related to the salience of the following economic institutions: labour organization, skill specificity, and public sector employment. This research shows that political preferences are endogenous to economic institutions and implies the existence of institutional advantages to partisan politics. A third substantive chapter focuses on ideological change in the United States and tests the proposition that voters advance a more liberal agenda in prosperous times and shift towards being more conservative in dire economic times. A reference-dependent utility model relates income growth to political preferences by way of the demand for public goods and the optimal tax rate. This work thus links voting behaviour to economic business cycles and shows that ideological change is endogenous to income growth rates. Finally, a fourth chapter presents the largest study to date of the influence of the

big five personality traits on political ideology. In line with prior research in political psychology, it is found that openness to experience strongly predicts liberal ideology and that conscientiousness strongly predicts conservative ideology. A variety of childhood experiences are also studied that may have a differential effect on political ideology based on an individual's personality profile. The findings of this final chapter provide new evidence for the idea that differences in political preferences are deeply intertwined with variation in the nature and nurture of individual personalities. Generally, this thesis provides some new insights into the complex world of political preference formation and does so by exploring the influential role of institutions, economic conditions, and personality.

Acknowledgements

The pursuit of a PhD is a solitary endeavour. The resulting output, however, is the product of an intensely collaborative process that requires a platonic relationship with a great many scholars and their published work. While I will never be able to personally thank most of the scholars whose work has inspired mine, the lengthy bibliography included at the end could be considered a tribute to their accumulated insights that shaped this thesis.

The resulting thesis also becomes a collaborative product by seeking out guidance from supervisors, mentors, colleagues, and friends. It is in this process that supervisors became mentors and that colleagues became friends. There are many individuals to whom I am immensely grateful for their personal involvement and without whom this thesis would have looked very different or may perhaps not have taken shape at all.

Let me begin with my supervisor, Professor Simon Hix. In fact, Simon's influence began well before I enrolled at LSE as he was instrumental in obtaining the LSE PhD scholarship that provided me with the financial means to effectively tackle the PhD. The academic freedom with which he entrusted me throughout the PhD and his ideas and suggestions at important junctures have shaped the thesis into what it is today. Simon has also been instrumental in the process of obtaining a faculty position and, I am sure, his influence will manifest itself further along the road. For all this and much more I am extremely grateful.

Professor Peter Hall and Professor Torben Iversen of Harvard University first introduced me to the academic scholarship in Political

Economy. It was both the substance and methodological approach that I felt naturally inclined to adopt. It was also in their 2006 seminar that I was introduced to the Varieties of Capitalism approach on which the first substantive chapter in this thesis builds. Their more recent help with recommendations and their scholarly and career advise is also gratefully acknowledged.

While I think that Political Economy is perhaps best suited to provide us with an overarching understanding of human society, my sense is that most scientific advances are currently being made at the level of the individual. A fortunate encounter with Professor James Fowler (University of California, San Diego) brought me in touch with this avant-garde of the social sciences. Access to the Add Health data set and his mentorship spurred a whole new research agenda for me and opened up a new world of learning, colleagues, and friends. I was—and remain—very excited with the opportunity to study genetics and individual personality traits as possible drivers of political and economic behaviour and even subjective well-being. James' direct and indirect influence on my day-to-day scholarly work is simply huge. I also gratefully acknowledge a very helpful recommendation he wrote for me.

At the LSE, I benefited greatly from discussions with Dr. Jonathan Hopkin and Dr. Piero Stanig. I am most thankful for their willingness and availability to read parts of this thesis and to help with substantive suggestions and statistical guidance along the way.

Specific chapters of this thesis also benefited from the input of particular colleagues and friends. With regards to Chapter 2, the median voter data set introduced here may not have seen the light without the combined help from Dr. Slava Mikhaylov (UCL), Professor Richard Fording (University of Kentucky), and Dr. Judith Bara (Queen Mary, University of London). They generously gave me access to data and coding that enabled me to tabulate and present these new median voter data. Chapter 3 on the political consequences of economic in-

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Chapter 1

Introduction

The question of what shapes political preferences is a central and long-standing pursuit in political science and political economy. It is also a foundational topic because many other important research agendas in the social sciences take political preferences as a given and as a point of departure when building theory. As such, the development of a robust and comprehensive understanding of political preference formation is an important endeavour. The resulting analysis should inform the wider social sciences because political ideology shapes—and is being shaped by—the socio-economic environment that we inhabit. The foundational importance of understanding political preference formation was highlighted by one of the seminal scholars in political science. In *An Economic Theory of Democracy*, Anthony Downs left us the following question as a research agenda [Downs, 1957, p. 140]:

> What forces shape this important parameter [the aggregate distribution of preferences]? At the beginning of our study, we assumed that voters' tastes are fixed, which means that the voter distribution is given. Thus we dodged the question just posed and have been evading it ever since.

Over time, the disciplines of political science, economics, sociology, and psychology have all contributed to this question. As a result, political preference formation has been studied from a multitude of perspectives and a long list of significant influences have been obtained; including economic conditions [Duch and Stevenson, 2008; Lewis-Beck and Paldam, 2000], income and inequality [Gelman et al., 2008; Lupu and Pontusson, 2008; Meltzer and Richard, 1981], electoral and economic institutions [Iversen and Soskice, 2006, 2009], political socialization and voter alignment [Campbell et al., 1960; Lipset and Rokkan, 1967], religiosity and beliefs [Alesina and Angeletos, 2006; Benabou and Tirole, 2006; Huber and Stanig, N.d.; Scheve and Stasavage, 2006], gender [Edlund and Pande, 2002; Inglehart and Norris, 2000; Powdthavee and Oswald, 2010], race [Luttmer, 2001], personality [Gerber et al., 2010; Mondak et al., 2010], physiological traits [Oxley et al., 2008], and, most recently, genetics have also been shown to influence political preference formation [Alford, Funk and Hibbing, 2005; Fowler, Baker and Dawes, 2008; Settle et al., 2010].

This thesis explores how political preferences are shaped by institutions, economic conditions, and personality. These three determinants of political ideology

and, ultimately, voting behaviour stand amid the many other influences that have been exposed across literatures. Still, the original intuition that these three particular influences are also particularly important was verified over the course of this research. This exploration of institutions, economic conditions, and personality as drivers of political preference formation advances the existing literature in a number of ways. The chapters that make up this thesis and their individual contributions are introduced below.

Chapter 2 introduces a median voter data set that allows for comparing the ideological position of the electoral center across time and across countries. The data set employs the statistics provided by the Comparative Manifesto Project but corrects for stochastic error using work by Benoit, Laver and Mikhaylov [2009] and includes standard errors. This research applies the Kim and Fording [1998] methodology that links party positions with electoral outcomes to arrive at revealed voter preferences. This data set provides insight into the median voter in over 50 democracies. For more established democracies the time series typically starts in the mid 1940s. For the United States the data starts in 1920 and includes the 2008 election. A number of descriptive graphs illustrate the major trends in voting behaviour.

Chapter 3 aims to explain cross-national voting behaviour in 18 Western democracies over 1960-2003 and exploits the new data set for the median voter that is introduced in the previous chapter. It is found that electoral behaviour

is closely related to the salience of particular economic institutions. Labour organization, skill specificity, and public sector employment are found to influence individual voting behaviour. At the country level, this chapter suggests that coordinated market economies move the median voter to the left, whereas liberal market economies move the median voter to the right. The empirical analysis employs cross-sectional and panel data that are instrumented with the level of economic structure circa 1900 to estimate the net effect of economic institutions on the median voter. Significant results show that revealed voter preferences are endogenous to the economic institutions of the political economy. This chapter places political economy at the heart of voting behaviour and implies the existence of institutional advantages to partisan politics.

Chapter 4 tests the proposition that voters advance a more liberal agenda in prosperous times and shift towards being more conservative in dire economic times. A reference-dependent utility model links income growth to voting behaviour by way of the demand for public goods and the optimal tax rate. With income growth, the relative demand for public goods increases and the median voter can afford more taxation, as a result the median voter is more likely to vote Democrat. With less income growth, the median voter derives increased marginal utility from personal income—making taxation more painful—and is more likely to vote Republican. Ordinary and instrumented statistical analyses of the new median voter data for the US median voter are encouraging of the income growth

model. This work links voting behaviour to economic business cycles and shows that ideological change is endogenous to income growth rates.

Chapter 5 presents the largest study to date on the influence of the "big five" personality traits on political ideology using a US representative sample. In line with research in political psychology, "openness to experience" is found to strongly predict liberal ideology and "conscientiousness" strongly predicts conservative ideology. The availability of sibling clusters in the data is leveraged to show that these results are also robust to the inclusion of family fixed effects. A variety of childhood experiences are also studied that may have a direct effect on political ideology as well as a differential effect based on a respondent's personality profile. Childhood trauma is found to interact with "openness" in predicting ideology and this triangular relationship is further explored using mediation analysis. The findings of this chapter provide new evidence for the idea that differences in political ideology are deeply intertwined with variation in the nature and nurture of individual personalities.

Each chapter is a distinct contribution and provides a different perspective on the formation of political preferences. These different approaches relate to the fields of comparative political economy, behavioural economics, and political psychology. Taken together, these perspectives provide some new insights into the complex world of political preference formation and do so by exploring the role of institutions, economic conditions, and personality.

Chapter 2

The Median Voter Data Set: Voter Preferences across 50 Democracies

2.1 Introduction

The work by Black [1948] and Downs [1957] introduced the concept of the median voter or the ideological position of the electoral center. The intuition behind the importance of the median voter existed prior in the writings of French mathematician Condorcet [1785] and the economist Hotelling [1929]. Condorcet first described the existence of a pivotal voter and Hotelling theorized on how economic agents move to capture the interests that lie at the center of a spatial market. Still, it took Downs' seminal *An Economic Theory of Democracy* and his work on the median voter theorem for it to become a central topic in Political Science and Political Economy. While the theorem pertains to majority elections

only and relies on a number of assumptions, the notion of an electoral center has general usage. As such, the median voter has come to figure widely across literatures but often lacked adequate data to support theoretical arguments.

Attempts at distilling quantitative data on ideology have typically relied on surveys that gauge political opinions (American National Election Studies, Eurobarometer) or on expert surveys [Castles and Mair, 1984]. Unfortunately, survey data are not readily available prior to 1970 and would be difficult to reconstruct. Most survey data also does not lend itself easily for comparison across countries and across time.[1] Given the limitations of survey data, the indicator for voter preferences that has gained widespread usage is the Kim and Fording [1998, 2003] measure for the median voter. Kim and Fording developed their measure in conjunction with the Comparative Manifesto Project (CMP) by Budge et al. [2001] and Klingemann et al. [2006]. Essentially, the position of the median voter is computed from vote shares for the ideologically ranked parties. The strength of the Kim-Fording measure stems from the fact that it is a CMP-based measure and hence builds on its detail and comprehensiveness. This measure of voter preferences allows for comparison across countries and across time. As compared to self-placement surveys, this methodology also ties in actual voting behaviour

[1] It is worthwhile pointing out that the Eurobarometer survey consistently asks its respondents to self-place on a left-right scale. Regrettably for cross-national analysis, self-placement on the left and right scale revolves around what constitutes the center for the respondent. Because notions of the political center vary quite dramatically across countries, the self-placement left-right survey data is of little value in cross-national studies.

which leaves opinion polling data more appropriately coined as "median citizen" instead of "median voter"[Warwick, 2009]. Usage of the Kim-Fording measure is increasingly widespread and includes work by McDonald and Budge [2005], Markussen [2008], Adams and Somer-Topcu [2006], Bartels [2008*b*], and Pontusson and Rueda [forthcoming].

At the same time, however, the underlying CMP data is increasingly subject to criticism. Most criticism centers on errors in CMP measurement because of the stochastic features of manifesto generation and manifesto coding processes. Recent contributions on the limits of the CMP include Benoit and Laver [2007], Edwards [2006], Hans and Hönnige [2008], Mikhaylov, Benoit and Laver [2008], and Benoit, Laver and Mikhaylov [2009].

This research note introduces a new, updated, and improved median voter data set that includes estimates of standard errors. It uses CMP statistics on party positions that are corrected for stochastic error by building on the work by Benoit, Laver and Mikhaylov [2009] and employs a subtractive methodology to arrive at a user-friendly range for left-right voter preferences. The results are compared with the Kim-Fording statistics in Table 2.1 and represented in Figure 2.1. Following the methodological part of the paper, a number of descriptive graphs illustrate the remarkable evolution of ideological change. The general trends are presented for the more established democracies, with a particular focus on the US given the unique longitudinal data made available here (1920-2008).

2.2 Methodology

This research employs the Comparative Manifesto Project (CMP) data set developed by Budge et al. [2001] and Klingemann et al. [2006]. The CMP codified all sentences of every election manifesto to place parties on a left-right scale.[1] This paper co-opts the subtractive method to quantify the ideological position of a party manifesto on the left-right scale, as used in the work by the CMP authors.[2] The scaling consists in subtracting the sum of percentage references to categories grouped as left from the sum of percentage references to categories grouped as right:

$$\text{IDParty} = \sum \text{Pro-right Categories} - \sum \text{Pro-left Categories}$$

The manifesto data is collected such that each statement is assigned to either a pro-left or a pro-right category. Consequently, negative scores represent a gener-

[1] Policy preferences associated with the left are: Regulation of capitalism, Economic Planning, Protectionism, Controlled economy, Nationalization, Decolonization, Peace, Internationalism, Democracy, Social services expansion, Education, and labour groups. Rightist categories are: Free enterprise, Incentives, Economic orthodoxy and efficiency, Social services reduction, Constitutionalism, Government effectiveness and authority, National way of life, Traditional morality, Law and order, National effort and social harmony, Military, and Freedom and domestic human rights.

[2] Kim and Fording [1998, 2003] deviate from the CMP method to calculate the measure of party ideology. Instead of using the subtractive measure they construct the following ratio measure:

$$\text{IDleft} = \sum \text{Pro-left Categories}$$
$$\text{IDright} = \sum \text{Pro-right Categories}$$
$$\text{IDParty} = \frac{IDleft - IDright}{IDleft + IDright}$$

ally left position, whereas positive scores are reflective of a right position.[1] Results range between -100 (extreme left) and +100 (extreme right).

As noted, the CMP data set is not without its critics. Benoit and Laver [2007], Edwards [2006], Hans and Hönnige [2008], Mikhaylov, Benoit and Laver [2008], and Benoit, Laver and Mikhaylov [2009] have critiqued the CMP for the absence of estimates of measurement uncertainty. Benoit, Laver and Mikhaylov [2009] detail the inherently stochastic processes of text generation and text coding for which the CMP does not provide error estimates. Manifesto generation allows for variation in texts that are not accounted for in the CMP measures. In fact, CMP measures treat as identical manifestos of different length even though some texts are a lot more informative than others. The human interpretative coding of CMP manifestos also leads to measurement uncertainty as the text coding is not carried out by a single coder.

The absence of estimates of measurement uncertainty in the CMP data in view of manifesto authorship and coding is troublesome and lowers the scientific quality of its statistics as well as the research that builds upon it. Treating words as data with error, Benoit, Laver and Mikhaylov [2009] proceed by bootstrapping the analysis of every coded manifesto. By way of these simulations they reconstruct the stochastic processes that generated these political texts. In doing so they are

[1] Given the broad definition of left-right partisanship that these CMP categories entail, Kim and Fording [2001] also referred to this metric as the degree of conservatism.

able to estimate degrees of non-systematic error for the thousands of manifestos coded by the CMP. The use of these error estimates allows for better empirical and theoretical inferences from the CMP data. The importance of correcting for measurement error in the CMP data cannot be overstated. In their piece, Benoit, Laver and Mikhaylov [2009] re-run two prominent studies that have used CMP data without accounting for measurement error. The results of these replications show that the corrected models by Hix, Noury and Roland [2006] and Adams et al. [2006] produce different implications than their authors originally claimed.

The bootstrapping work by Benoit, Laver and Mikhaylov [2009] also allows for generating new data estimates of party policy positions. The alternative estimate for a party policy position then becomes the mean estimator of the bootstrap simulations that were drawn for each manifesto. These new data for party policy positions calibrates for stochastic error in the CMP.[1]

This paper makes use of these new and corrected party policy positions. By linking this data to electoral results using the Kim-Fording methodology [Kim and Fording, 1998, 2003] we arrive at statistical measures for revealed voter preferences. The position of the median voter is computed from vote shares for the ideologically ranked parties. This is done by first ranking the parties by ideological score for every election in each country. Then for each party the interval

[1]The Benoit, Laver and Mikhaylov [2009] data set with CMP statistics, uncertainty measures, and bootstrapping mean estimators ("rilemean") for party positions are available at `http://www.kenbenoit.net/`.

where its supporters are located is tabulated by locating the midpoints between the ideologically neighboring parties. Assuming that voters choose the candidate or party that is ideologically closest to them, a party will attract the votes of those that are part of the interval that surrounds that party. The assumption that voting behaviour is an expression of preferences or beliefs is common [Coate and Conlin, 2004; Mullainathan and Washington, 2009]. Still, it is important to underscore that this assumption implies a disregard of the part of the electorate that may vote strategically rather than ideologically.[1] Finally, the electoral results for each party at every election are matched to produce the percentage of the electorate that is grouped into each ideological interval.[2]

As Kim and Fording [2003: 96] point out, their method requires us "to conceive of elections as large-scale opinion polls." Where the ballot acts as a survey in which subject chooses the party that is ideologically closest on the partisan left-right spectrum. As such, it is possible to treat election results as a grouped frequency distribution and tabulate a median statistic. In line with the Kim-Fording method, the median position is calculated using the following formula:

$$M = L + \frac{50-C}{F} * W$$

[1] Stevenson [2001] notes that estimates of the importance of strategic voting rarely attain 10%.

[2] The data on electoral results is available from the CMP publications [Budge et al., 2001; Klingemann et al., 2006]. The electoral data entries had to be standardized because the electoral results do not always add up to a 100.

where:

M = Median voter (ideological score)

L = Lower end of the interval containing the median.

C = Cumulative frequency (vote share) up to but not including the interval containing the median.

F = Frequency (vote share) in the interval containing the median.

W = Width of the interval containing the median.

To illustrate the Kim-Fording method with a fictitious example, consider an election for a country with 4 parties. Coding of the manifestos places Party A at -60 on the left-right scale running from -100 (extreme left) to +100 (extreme right) and Parties B, C, and D at, respectively, -10, 20, and 50. Having ranked party policy positions we can now tabulate the ideological intervals surrounding each party to which their voters belong given the assumption that voters choose the party that is ideologically closest on the partisan left-right spectrum. The first ideological interval that provides the support for Party A thus runs from -100 to -35. The second interval groups voters that fall within the -35 to +5 group and will provide electoral support for Party B. Intervals +5 to +35 and +35 to +100 group voters for Parties C and D. Next, we match the electoral results to each ideological interval. For example, Party A obtained 10% of the vote and Parties B, C, and D obtained, respectively, 40%, 30%, and 20%. The resulting grouped

frequency distribution allows for the tabulation of a median statistics. Applying the Kim-Fording method to this example we obtain a median voter position of 7.14. The ideological centre of this fictitious country at the time of this election would thus be centre-right or conservative.[1]

Figure 2.1 shows the resulting left-right positions of 53 democracies averaged over their respective periods for which data is available. The horizontal bars represent standard errors. The data ranges between -100 (extreme left) and +100 (extreme right).

Among the more established democracies, in line with conventional wisdom the most left-leaning states have been Norway, Sweden, Finland, and Luxembourg. On the other end of the ideological spectrum are Switzerland, the United States, Israel, Turkey, and Iceland. With more recent democracies, for which less data is available, such as Russia and the central and eastern european countries we note a tendency to gravitate towards the more conservative end of the left-right spectrum. Also of interest is the degree to which countries exhibit ideological stability over their respective time series. Table 2.1 reports the standard deviations for this set of 53 democracies and provides insight into the magnitudes

[1]The Kim-Fording measure allows for tabulating a median statistic. However, what the Kim-Fording measure does not capture, for example, is the degree of ideological polarization in an election. Party positions could lie close to each other or wide apart but the resulting median statistic could well be the same. Moreover, the median voter statistic may not capture important changes in the underlying preferences of the voter. While the measure will capture the evolution of the median voter over time it may not capture important changes happening on either side of the median statistic.

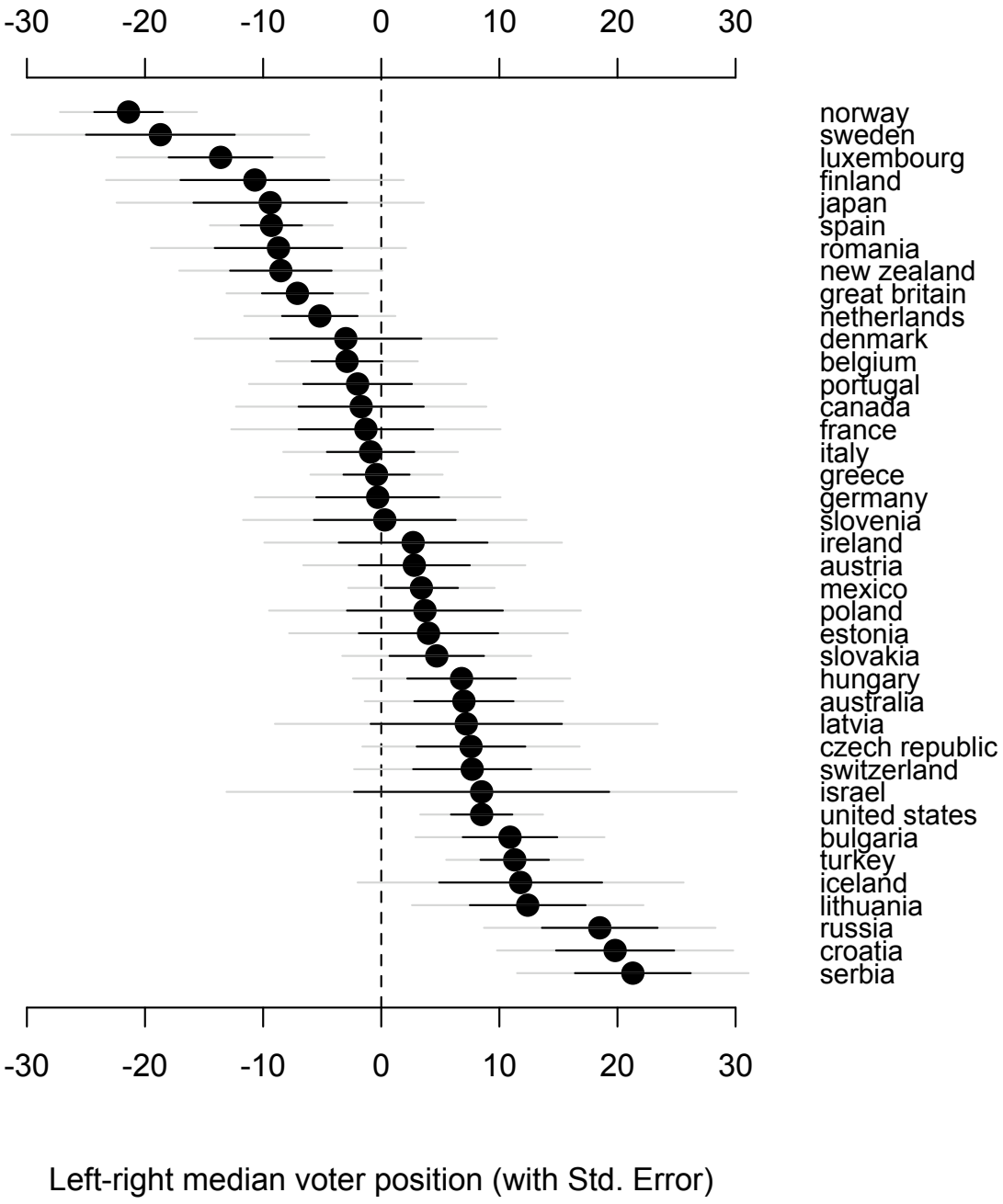

Figure 2.1: The Median Voter (average for available time series by country)

of ideological shifts. Among established democracies, the countries with least ideological movement have been Canada, Norway, the United States, and New Zealand. In contrast, the countries that showed most ideological instability are Turkey, Iceland, and Sweden.

2.3 Comparison

While notoriously difficult to demonstrate the validity of a measure of voter preferences given the lack of a universally accepted benchmark, Kim and Fording [1998, 2001, 2003] perform a number of validity tests with other indicators of voter preferences (convergent validity) and checks with related empirical and theoretical work (face validity). The methodology to construct these median voter statistics also underwent robustness checks carried out by, among others, Powell [2000] and McDonald and Budge [2005]. The results are consistent and lend credibility to their methodology and assumptions. Here it may suffice to compare the Kim-Fording data with the data set that is introduced in this paper.[1] Table 2.1 presents the country estimates for the median voter averaged over the

[1]The most recent Kim-Fording data is available on the website of HeeMin Kim and incorporates the CMP data of Mapping Policy Preferences II [Klingemann et al., 2006]. Their data set ranges from 0 to +100 (with left being > 50 and right being < 50). In order to compare and bring their data to the -100 (left) to +100 (right) scale used in this paper, the following tabulation was performed:
$(x - 50)*-2$
The Kim-Fording data is available at `http://heeminkimfsu.googlepages.com/datasetsandsolutionconceptsicreated` (accessed on 28 October 2009).

available data for both the Kim-Fording estimates and the new data introduced here. Standard errors and standard deviations are given for the new data set, the Kim-Fording statistics do not offer standard errors.

Table 2.1: Comparative analysis of the Median Voter data.

Country	**from**	**Kim-Fording**	**De Neve**	**Std. error**	**Std. dev**
United States	1920[1]	7.8	6.8	2.2	18.9
European Union					
Austria	1949	2.7	2.8	4.7	16.2
Belgium	1946	-2.8	-2.9	3.0	10.1
Bulgaria	1990	10.9	8.9	4.0	12.7
Croatia	1990	18.5	19.8	5.0	16.3
Cyprus	1996	-6.5	-7.2	1.4	6.9
Czech Rep.	1990	6.4	7.6	4.6	9.3
Denmark	1945	-3.2	-3.0	6.4	9.7
Estonia	1992	2.6	4.0	5.9	4.8
Finland	1945	-10.5	-10.7	6.3	12.8

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[1]The Kim-Fording data has time series for the US from 1948 until 2000. This data set offers time series for the US from 1920 to 2008.

Table 2.1 – continued from previous page

Country	from	Kim-Fording	De Neve	Std. error	Std. dev
France	1946	0.2	-1.3	5.7	11.8
Germany	1949	-0.3	-0.3	5.2	10.8
Great Britain	1945	-6.4	-7.1	3.0	14.7
Greece	1974	-0.5	-0.4	2.8	10.6
Hungary	1990	5.6	6.8	4.6	4.4
Ireland	1948	2.8	2.7	6.3	14.2
Italy	1946	-1.4	-0.9	3.7	10.9
Latvia	1993	6.3	7.2	8.1	7.3
Lithuania	1992	12.3	12.4	4.9	18.1
Luxembourg	1945	-13.6	-13.6	4.4	10.0
Malta	1996	-15.6	1.3	1.8	20.1
Netherlands	1946	-5.0	-5.2	3.2	11.1
Nth. Ireland	1921	n/a	-4.6	6.7	19.6
Poland	1991	7.2	3.7	6.6	11.6
Portugal	1975	-2.0	-2.0	4.6	21.1
Romania	1990	-2.8	-8.7	5.4	12.7
Slovakia	1990	4.7	4.7	4.0	10.1

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Table 2.1 – continued from previous page

Country	from	Kim-Fording	De Neve	Std. error	Std. dev
Slovenia	1990	0.1	0.3	6.0	5.9
Spain	1977	-11.2	-9.3	2.6	8.4
Sweden	1944	-15.6	-18.7	6.3	18.4
Other					
Albania	1991	1.8	10.9	4.0	5.7
Armenia	1995	2.3	6.3	6.9	7.3
Australia	1946	7.1	7.0	4.2	12.6
Azerbaijan	1995	11.9	12.1	9.5	3.8
Belarus	1995	n/a	1.2	5.6	n/a
Bosnia-Herz.	1990	28.2	23.2	6.1	19.7
Canada	1945	-1.7	-1.7	5.3	6.9
Georgia	1995	9.0	14.3	6.9	15.4
Iceland	1946	12.0	11.8	6.9	19.1
Israel	1949	7.6	8.5	10.8	9.1
Japan	1960	-9.0	-9.4	6.5	12.9
Mexico	1946	n/a	3.4	3.1	13.2
Moldova	1994	3.6	3.6	3.5	n/a

Continued on next page

Table 2.1 – continued from previous page

Country	from	Kim-Fording	De Neve	Std. error	Std. dev
Montenegro	1990	4.9	7.7	4.4	4.7
New Zealand	1946	-8.7	-8.5	4.3	10.5
Norway	1945	-22.9	-21.4	2.9	7.0
Russia	1993	18.8	18.5	4.9	19.4
Serbia	1990	19.8	21.3	4.9	15.8
Sri Lanka	1947	n/a	-13.0	3.9	6.5
Switzerland	1947	6.7	7.7	5.0	8.8
Turkey	1950	11.2	11.3	2.9	16.5

Note: Table shows the median voter average for available time series by country. The median voter data ranges between -100 (extreme left) and +100 (extreme right).

Generally, the estimates are similar enough to argue consistency (r=0.93), yet sufficiently different to warrant claiming a novel data set. The bootstrapping work by Benoit, Laver and Mikhaylov [2009] allowed for the inclusion of measurement error with this new median voter data, a welcome addition that should prove useful for future econometric studies. Next, this paper presents a number of descriptive figures of the new median voter data set for more established

democracies that may shed light on important debates in political science and political economy. Ideological change in the US is detailed thereafter.

2.4 Ideological change

Figure 2.2 shows the general evolution of voter preferences for 25 Western democracies for which data was available since 1950 (weighted by population). In line with conventional wisdom, there is a strong ideological shift towards the left that starts in the late 1950s and culminates around 1968. The 1970s, however, see an equally powerful return shift in ideology that becomes increasingly conservative or rightist as we enter the 1980s and 1990s. While every country has its unique ideological flavor, it is equally clear that there is a pervasive sense of co-variance across Western democracies. The broad ideological shifts appear to be general in nature. Stevenson [2001], Markussen [2008], and Kayser [2009] argue that the electoral success of left and right politics move in "partisan waves" that are partially shaped by international business cycles.

Given the importance of electoral systems and economic institutions, it could also be of interest to present how variation among countries interacts with voter preferences. Figure 2.3 splits the sample of 25 Western democracies by either majoritarian or proportional representation systems. A clear-cut ideological divergence only starts in the early 1970s when the voters in majoritarian electoral

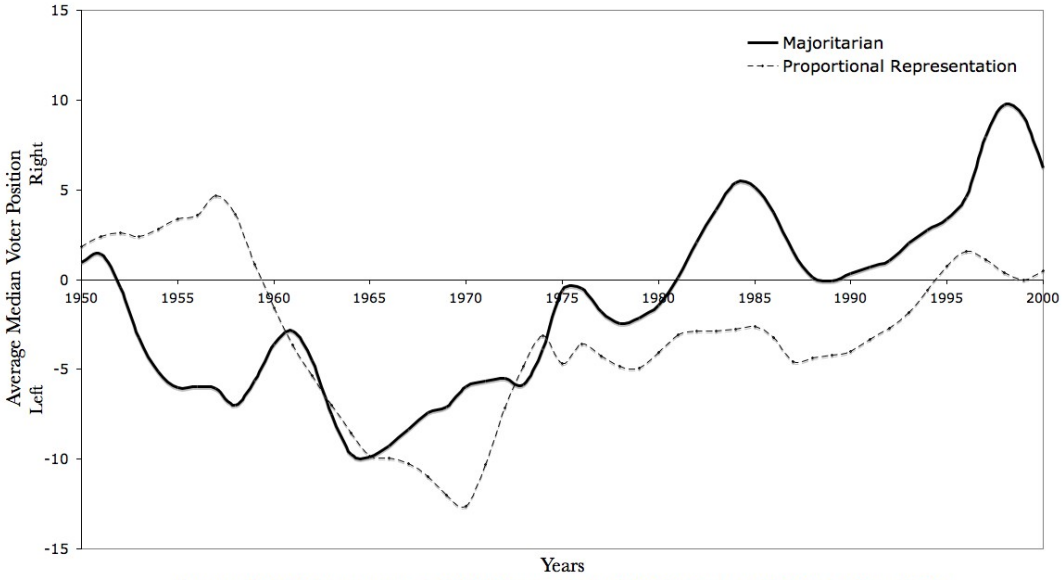
Sources: CMP (Klingemann et al, 2006); Kim and Fording (2003); Benoit et al (2009); De Neve (2009)
Note: the median voter data ranges between -100 (extreme left) and +100 (extreme right)

Figure 2.2: Average Voter Preferences in 25 Western Democracies (1950-2004)

systems make a pronounced shift towards the conservative right. The voting public in democracies with P.R. systems catches up slowly yet remains leftist until the mid-1990s.

Figure 2.4 looks into how countries with different clusters of economic institutions interact with voter preferences. Perhaps the most appropriate way in differentiating between political economies is to distinguish coordinated market economies (CMEs) from liberal market economies (LMEs) as suggested by Hall and Soskice [2001] in *Varieties of Capitalism*.[1]

[1]Hall and Soskice [2001] propose a distinction between two clusters of capitalist economies on the basis of the means that firms and other actors use to coordinate their actions across the political economy. Hall and Soskice (2001: 20) describe and list CMEs (e.g. Sweden, Austria, Germany) and LMEs (e.g. USA, UK, Australia).

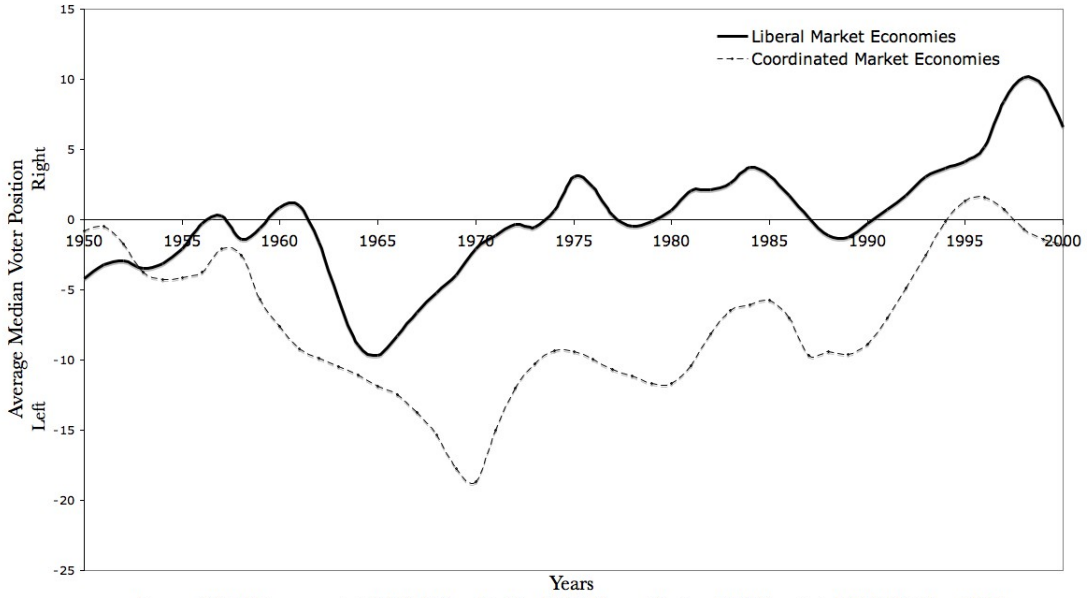


Sources: CMP (Klingemann et al, 2006); Kim and Fording (2003); Benoit et al (2009); De Neve (2009)
Note: the median voter data ranges between -100 (extreme left) and +100 (extreme right)

Figure 2.3: Voter preferences in 25 Western democracies split by majoritarian and P.R. electoral systems (1950-2000)

Categorizing this set of democracies by cluster of economic institutions instead of electoral system leads to a more pronounced and sustained split with regards to voter preferences.[1] While there are common ideological trends across democracies, voter preferences would appear to be mediated by varieties of economic and electoral systems.

[1]De Neve [2009*a*] finds that voter preferences are closely related to the salience of particular economic institutions. Labour organization, skill specificity, and public sector employment are found to influence individual voting behaviour. At the country level, his reasoning suggests that coordinated market economies move the median voter to the left, whereas liberal market economies move the median voter to the right. An instrumented empirical analysis estimates the net effect of economic institutions on the median voter. Significant results indicate that revealed voter preferences are endogenous to the economic institutions of the political economy.



Sources: CMP (Klingemann et al, 2006); Hall and Soskice (2001); Kim and Fording (2003); Benoit et al (2009); De Neve (2009)
Note: the median voter data ranges between -100 (extreme left) and +100 (extreme right)

Figure 2.4: Voter preferences in 25 Western democracies split by Liberal and Coordinated Market Economies (1950-2000)

2.5 The United States, 1920-2008

For the United States only, the election documents going back as far as 1920 have been coded. Moreover, a special effort was made to code the most recent 2008 election documents.[1] The result is a unique view of the evolution of voter preferences in the United States as shown in Figure 2.5. The American National Election Studies (ANES) party self-identification measure[2] is added on from when it became available (1952), as well as a polynomial trend line to show the general trend in voting behaviour between 1920 and 2008 in the US.

In line with conventional wisdom it shows the US to be generally rightist or conservative. The one time that the US public enters leftist territory is between 1945-50 when, in the wake of the Roosevelt years, Truman finds fertile ground to introduce the Fair Deal that implements a large number of social and economic reforms; including the Housing Act of 1949, an expansion of social security, as well as the first call for universal healthcare. On the international front this less conservative period shows in the large economic aid programs as symbolized by the Marshall Plan. Soon thereafter, however, the US gradually returns to being increasingly more conservative with support for Eisenhower, Nixon, Reagan, and Bush Sr. The elections of Kennedy, Johnson, and Carter do not indicate a turning of the ideological tide though the Kennedy to Johnson and Carter years show

[1]Ian Budge and Judith Bara are to be thanked for their efforts and approval of early release.

[2]The ANES measure of party identification is a bi-annual survey that gauges whether respondents think of themselves as Democrat, Independent, or Republican on a 7-point scale.

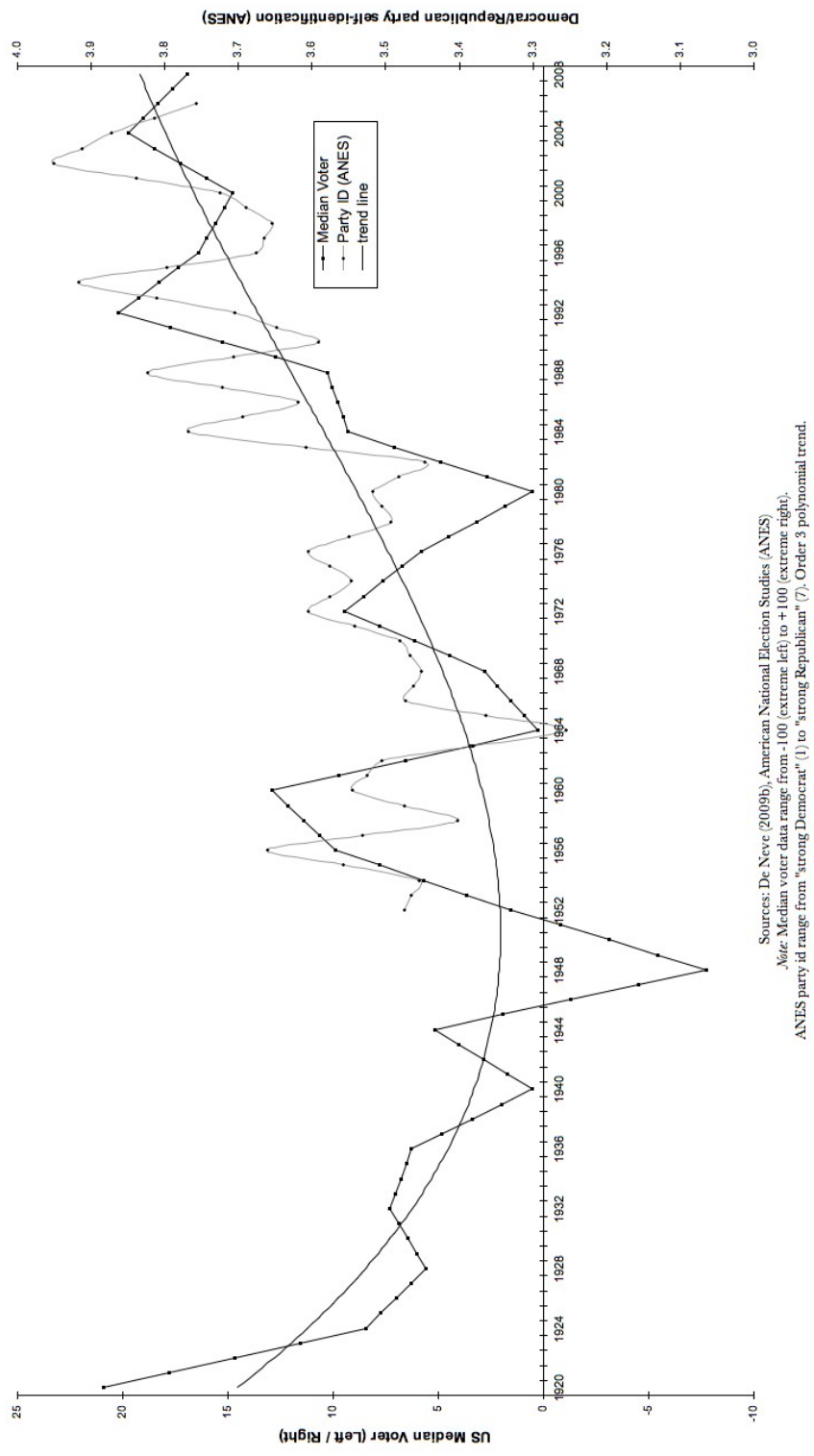


Figure 2.5: The US Median Voter, 1920-2008

a softening conservatism. The mid-eighties see another quantum leap in the conservatism of the American public and culminates with the electoral victory of Bill Clinton who rode the conservative wave on a platform that heralded "the era of big government is over" and promoted fiscal conservatism. The conservativeness of the US electorate drops slightly throughout the second term of the Clinton years and the 2000 election of Bush Jr. However, towards the 2004 re-election of Bush Jr., we note an upswing in conservatism that gradually peels off when we head for the Obama presidency. [1]

Of course, in order to measure ideological change in the US one could simply take the variation in electoral success between Democrat and Republican candidates over time. To do so, however, would be a mistake as it would falsely assume that the ideological position of either party has not altered over time. Combining electoral success with an in-depth analysis of party documents since 1920 allows for a sophisticated measure of voting behaviour and ideological change that incorporates voter and party dynamics.

[1] What drives these changes in voter sentiment? Durr [1993] and De Neve [2009*b*] build empirical arguments to claim that these broad shifts in ideological sentiment represent responses to changing economic conditions.

2.6 Conclusion

This research note built upon the CMP bootstrapping work done by Benoit, Laver and Mikhaylov [2009] and applied the Kim-Fording [1998, 2003] methodology to arrive at a new data set for the median voter. The new data set distinguishes itself by (i) employing party positions corrected for stochastic error; (ii) producing standard errors; and (iii) updating previous median voter statistics. The data is reproduced in the appendix and will be continuously updated online as new data becomes available.

It is important to highlight the fact that the median voter statistics are derived indirectly via party policy positions and their success at the election polls, and not from direct evidence of voter opinions. However, as noted by Pontusson and Rueda (2008: 13), "it seems quite accurate to think of the position of the median voter as being constructed by parties in competition with each other." Furthermore, given the inherent difficulties in employing survey data for cross-national and historic analyses of voter preferences, these median voter data may be a reasonable alternative. First, historic survey data may not be available for a number of countries. Second, left-right self-placement may not allow for cross-national analysis as subjective notions of the political center vary quite dramatically across countries. Finally, as explained in McDonald and Budge [2005] "an additional problem with relying on survey data to measure citizens'

ideologies is that strong evidence exists that citizens' Left-Right self-placements are subject to *assimilation* effects, that is, that citizens tend to place themselves unduly close to parties they like for non-policy-related reasons." Empirical issues such as the above may make the use of public opinion polling often inadequate and, hence, the possible usefulness of the median voter data introduced here.

Two important descriptive inferences are made from evaluating the median voter data. First, countries exhibit very different ideological positions over time. Among established democracies, the voting public of the US, Iceland, Israel, Switzerland and Turkey displayed conservative or rightist political views. On the other hand, the Scandinavian societies showed a far greater preference for leftist policies. Second, while countries exhibit different ideological flavors, one can distinguish general trends in ideological movement that appear common to the majority of Western democracies and may be mediated by economic and electoral systems. This would indicate that change in voter preferences travels across borders and among varieties of economic and electoral systems.

This new data set for the median voter lends itself to a wide range of empirical research in political economy and political science, and is of use to both cross-national and within country analyses. Scholars interested in the power of ideas will find use for these time series on revealed political preferences. Scholars working on representation will be interested in linking up these voter preferences with the ideological make-up of government and policy output. Scholars of inter-

national political economy with interests in trade or macroeconomic performance will be advised to look into how voter preferences may influence economic outcomes. Finally, this data provides fertile ground for future research on exploring these important cross-national left-right patterns.

2.7 Appendix: data

Country	Election	Median voter	Std error
United States	2-Nov-20	20.88	3.68
United States	4-Nov-24	8.28	3.04
United States	6-Nov-28	5.49	2.88
United States	8-Nov-32	7.18	4.21
United States	3-Nov-36	6.06	3.10
United States	5-Nov-40	0.16	3.47
United States	7-Nov-44	5.02	3.86
United States	2-Nov-48	-7.67	5.33
United States	4-Nov-52	1.38	2.86
United States	6-Nov-56	10.05	2.08
United States	8-Nov-60	12.79	1.82
United States	3-Nov-64	0.54	2.09
United States	5-Nov-68	2.72	2.11
United States	7-Nov-72	9.57	1.37
United States	2-Nov-76	5.76	1.45
United States	4-Nov-80	0.61	1.04
United States	6-Nov-84	9.18	4.69
United States	8-Nov-88	10.31	2.76
United States	3-Nov-92	20.32	2.15
United States	5-Nov-96	16.38	1.71
United States	7-Nov-00	14.83	1.50
United States	2-Nov-04	19.73	1.65
United States	4-Nov-08	16.95	1.55
European Union			
Austria	9-Oct-49	12.11	8.45
Austria	22-Feb-53	0.91	7.14
Austria	13-May-56	12.60	13.45
Austria	10-May-59	11.82	4.84
Austria	18-Nov-62	-2.52	9.37
Austria	6-Mar-66	-3.56	2.75
Austria	1-Mar-70	-39.76	5.19
Austria	10-Oct-71	10.11	3.26
Austria	5-Oct-75	14.97	3.99
Austria	6-May-79	-10.13	3.43
Austria	24-Apr-83	-9.83	2.77
Austria	23-Nov-86	-3.50	3.27
Austria	7-Oct-90	-1.17	2.08
Austria	9-Oct-94	19.07	1.66
Austria	17-Dec-95	34.64	3.22
Austria	3-Oct-99	10.14	2.94
Austria	24-Nov-02	-7.75	1.69
Belgium	17-Feb-46	23.10	4.88
Belgium	29-Jun-49	-10.15	2.65
Belgium	4-Jun-50	-1.54	3.17
Belgium	11-Apr-54	5.61	1.56
Belgium	1-Jun-58	-8.99	3.20
Belgium	26-Mar-61	-12.18	4.44
Belgium	23-May-65	-9.60	3.81
Belgium	31-Mar-68	0.77	2.86
Belgium	7-Nov-71	-19.97	5.27
Belgium	10-Mar-74	-13.66	2.04
Belgium	17-Apr-77	-5.64	3.42
Belgium	17-Dec-78	1.15	2.55
Belgium	8-Nov-81	1.27	1.84
Belgium	13-Oct-85	14.19	3.15
Belgium	13-Dec-87	-3.24	3.67
Belgium	24-Nov-91	-4.53	2.68
Belgium	21-May-95	-3.75	1.82
Belgium	13-Jun-99	-5.31	1.26

Country	Election	Median voter	Std error
Bulgaria	10-Jun-90	21.80	6.71
Bulgaria	13-Oct-91	8.67	4.86
Bulgaria	18-Oct-94	3.07	2.90
Bulgaria	19-Apr-97	25.70	3.17
Bulgaria	18-Jun-01	-4.50	2.25
Croatia	22-Apr-90	2.12	4.55
Croatia	2-Aug-92	22.93	5.48
Croatia	29-Oct-95	34.29	5.12
Cyprus	26-May-96	-2.32	1.56
Cyprus	27-May-01	-12.05	1.19
Czech Rep.	9-Jun-90	18.52	6.20
Czech Rep.	6-Jun-92	15.39	3.01
Czech Rep.	31-May-96	7.18	4.89
Czech Rep.	19-Jun-98	-0.32	4.65
Czech Rep.	14-Jun-02	-2.56	4.31
Denmark	30-Oct-45	-16.51	5.67
Denmark	28-Oct-47	-3.99	5.94
Denmark	5-Sep-50	2.79	9.31
Denmark	21-Apr-53	-2.85	7.06
Denmark	22-Sep-53	-0.77	6.42
Denmark	14-May-57	3.81	8.74
Denmark	15-Nov-60	-20.85	4.11
Denmark	22-Sep-64	-15.14	3.64
Denmark	22-Nov-66	-3.73	5.50
Denmark	23-Jan-68	-4.36	5.98
Denmark	21-Sep-71	-4.45	5.54
Denmark	4-Dec-73	9.09	5.47
Denmark	9-Jan-75	10.40	5.88
Denmark	15-Feb-77	-2.98	8.06
Denmark	23-Oct-79	1.23	9.17
Denmark	8-Dec-81	-0.77	3.71
Denmark	10-Jan-84	-10.35	4.33
Denmark	8-Sep-87	-23.00	5.75
Denmark	10-May-88	-1.60	5.27
Denmark	12-Dec-90	-7.07	7.34
Denmark	21-Sep-94	-2.39	10.14
Denmark	11-Mar-98	6.36	5.68
Denmark	20-Nov-01	17.14	8.55
Estonia	20-Sep-92	8.97	5.25
Estonia	5-Mar-95	6.85	4.11
Estonia	7-Mar-99	-1.48	9.80
Estonia	2-Mar-03	1.54	4.38
Finland	18-Mar-45	3.81	5.87
Finland	2-Jul-48	1.85	5.13
Finland	3-Jul-51	6.61	7.09
Finland	8-Mar-54	-19.71	3.75
Finland	7-Jul-58	-13.82	4.33
Finland	5-Feb-62	-1.75	5.63
Finland	21-Mar-66	-13.26	5.41
Finland	16-Mar-70	-21.85	5.80
Finland	3-Jan-72	-3.41	7.54
Finland	22-Sep-75	-30.73	8.04
Finland	13-Mar-79	-26.95	12.82
Finland	21-Mar-83	-16.58	11.94
Finland	16-Mar-87	-33.41	4.48
Finland	17-Mar-91	-0.99	6.31
Finland	19-Mar-95	0.61	4.58
Finland	21-Mar-99	1.21	5.49
Finland	16-Mar-03	-13.43	2.55

Country	Election	Median voter	Std error
France	10-Nov-46	26.31	4.01
France	17-Jun-51	19.44	6.96
France	2-Jan-56	0.79	6.28
France	23-Nov-58	1.16	5.21
France	18-Nov-62	-2.48	5.65
France	5-Mar-67	-7.89	6.07
France	23-Jun-68	-5.38	9.00
France	4-Mar-73	-18.45	3.90
France	12-Mar-78	-12.07	5.14
France	14-Jun-81	-11.37	7.54
France	16-Mar-86	5.80	7.16
France	5-Jun-88	0.07	5.62
France	21-Mar-93	-6.94	4.86
France	25-May-97	1.64	5.08
France	9-Jun-02	-10.54	3.35
Germany	14-Aug-49	-13.21	6.70
Germany	6-Sep-53	-7.44	8.06
Germany	15-Sep-57	29.88	10.14
Germany	17-Sep-61	-0.75	8.64
Germany	19-Sep-65	-2.96	3.83
Germany	28-Sep-69	-7.87	7.69
Germany	19-Nov-72	-3.15	3.77
Germany	30-Oct-76	2.59	5.42
Germany	9-Oct-80	-1.88	3.25
Germany	6-Mar-83	14.64	5.16
Germany	25-Jan-87	-0.87	2.83
Germany	2-Dec-90	-11.01	4.12
Germany	16-Oct-94	-7.59	2.06
Germany	27-Sep-98	0.42	4.09
Germany	22-Sep-02	5.29	2.55
Great Britain	5-Jul-45	18.76	2.66
Great Britain	23-Feb-50	-12.18	2.39
Great Britain	25-Oct-51	-13.21	4.50
Great Britain	26-May-55	-33.39	2.81
Great Britain	8-Oct-59	-23.95	2.58
Great Britain	15-Oct-64	-17.80	3.53
Great Britain	31-Mar-66	-12.48	2.37
Great Britain	18-Jun-70	4.64	5.79
Great Britain	28-Feb-74	-23.52	2.34
Great Britain	10-Oct-74	-4.42	2.66
Great Britain	3-May-79	-3.44	3.85
Great Britain	9-Jun-83	0.98	2.11
Great Britain	11-Jun-87	5.59	2.08
Great Britain	9-Apr-92	-19.51	2.44
Great Britain	1-May-97	12.41	2.88
Great Britain	7-Jun-01	7.65	2.64
Greece	17-Nov-74	-0.59	3.90
Greece	20-Nov-77	2.13	3.95
Greece	18-Oct-81	16.19	3.64
Greece	2-Jun-85	-11.67	1.98
Greece	18-Jun-89	5.25	4.18
Greece	5-Nov-89	14.48	3.79
Greece	8-Apr-90	2.42	3.33
Greece	10-Oct-93	-7.94	1.15
Greece	22-Sep-96	-12.42	0.48
Greece	9-Apr-00	-12.19	1.56

Country	Election	Median voter	Std error
Hungary	25-Mar-90	6.91	5.75
Hungary	8-May-94	11.91	4.60
Hungary	10-May-98	7.43	3.22
Hungary	7-Apr-02	1.13	5.01
Ireland	4-Feb-48	-10.07	6.80
Ireland	30-May-51	-10.39	7.37
Ireland	18-Apr-54	16.94	9.94
Ireland	5-Mar-57	40.10	9.50
Ireland	4-Oct-61	20.93	11.27
Ireland	7-Apr-65	-5.86	5.89
Ireland	16-Jun-69	11.46	5.12
Ireland	28-Feb-73	15.90	9.29
Ireland	16-Jun-77	-0.70	2.70
Ireland	11-Jun-81	1.47	5.79
Ireland	18-Feb-82	-0.84	12.38
Ireland	24-Nov-82	-12.48	8.65
Ireland	17-Feb-87	-5.87	1.92
Ireland	15-Jun-89	-9.48	1.40
Ireland	25-Nov-92	-1.28	4.28
Ireland	6-Jun-97	4.44	1.54
Ireland	17-May-02	-8.08	2.71
Italy	2-Jun-46	-11.33	9.14
Italy	18-Apr-48	6.21	6.30
Italy	7-Jun-53	-10.18	7.22
Italy	25-May-58	-12.53	4.25
Italy	28-Apr-63	-13.13	1.96
Italy	19-May-68	-12.12	4.83
Italy	7-May-72	-5.54	2.36
Italy	20-Jun-76	0.38	3.12
Italy	3-Jun-79	-8.33	2.59
Italy	26-Jun-83	-4.44	1.80
Italy	14-Jun-87	4.85	2.40
Italy	6-Apr-92	8.68	2.26
Italy	28-Mar-94	8.38	1.84
Italy	21-Apr-96	17.16	3.96
Italy	13-May-01	18.56	1.55
Latvia	5-Jun-93	17.74	8.85
Latvia	30-Sep-95	6.55	13.88
Latvia	3-Oct-98	3.13	1.82
Latvia	5-Nov-02	1.39	7.84
Lithuania	25-Oct-92	29.57	9.01
Lithuania	20-Oct-96	14.22	3.08
Lithuania	8-Oct-00	-6.55	2.58
Luxembourg	21-Oct-45	5.21	7.47
Luxembourg	6-Jun-48	-21.17	10.51
Luxembourg	3-Jun-51	-2.63	6.64
Luxembourg	30-May-54	-9.11	13.04
Luxembourg	1-Feb-59	-11.38	1.99
Luxembourg	7-Jun-64	-26.59	3.43
Luxembourg	15-Dec-68	-22.82	2.61
Luxembourg	26-May-74	-28.62	1.81
Luxembourg	10-Jun-79	-15.04	1.92
Luxembourg	17-Jun-84	-16.22	1.58
Luxembourg	18-Jun-89	-2.38	2.08
Luxembourg	12-Jun-94	-16.52	1.67
Luxembourg	13-Jun-99	-9.16	1.94

Country	Election	Median voter	Std error
Malta	26-Oct-96	15.55	1.64
Malta	5-Sep-98	-12.85	1.87
Netherlands	17-May-46	1.57	5.55
Netherlands	7-Jul-48	5.57	6.86
Netherlands	25-Jun-52	17.73	3.37
Netherlands	13-Jun-56	8.54	2.94
Netherlands	12-Mar-59	-8.49	6.82
Netherlands	15-May-63	-14.97	5.99
Netherlands	15-Feb-67	2.08	3.62
Netherlands	28-Mar-71	-25.43	4.06
Netherlands	29-Nov-72	-17.42	4.46
Netherlands	25-May-77	-10.81	2.02
Netherlands	26-May-81	-19.05	1.08
Netherlands	8-Sep-82	-11.29	1.33
Netherlands	21-May-86	-3.27	1.14
Netherlands	6-Sep-89	-10.83	1.42
Netherlands	3-May-94	1.19	0.98
Netherlands	6-May-98	-12.39	1.45
Netherlands	15-May-02	2.49	2.01
Netherlands	22-Jan-03	1.47	2.47
Nth. Ireland	1-Jan-21	13.35	6.50
Nth. Ireland	1-Jan-25	-15.14	8.30
Nth. Ireland	1-Jan-29	6.52	5.21
Nth. Ireland	1-Jan-33	-21.65	8.99
Nth. Ireland	1-Feb-38	-0.17	5.94
Nth. Ireland	1-Jun-45	-25.24	5.96
Nth. Ireland	1-Feb-49	-6.46	5.71
Nth. Ireland	1-Oct-53	-8.79	9.71
Nth. Ireland	1-Mar-58	-8.73	7.73
Nth. Ireland	1-Mar-63	-17.46	4.53
Nth. Ireland	1-Nov-65	-13.00	5.56
Nth. Ireland	1-Feb-69	-13.19	8.46
Nth. Ireland	1-Jul-73	50.00	5.00
Poland	27-Oct-91	14.13	11.85
Poland	19-Sep-93	-8.06	5.64
Poland	21-Sep-97	13.20	5.75
Poland	23-Sep-01	-4.51	3.20
Portugal	25-Apr-75	-45.91	5.02
Portugal	25-Apr-76	2.90	6.57
Portugal	5-Oct-79	7.94	5.78
Portugal	5-Oct-80	16.41	4.34
Portugal	25-Apr-83	-7.97	4.61
Portugal	6-Oct-85	21.72	7.53
Portugal	19-Jul-87	23.29	5.73
Portugal	6-Oct-91	-9.35	2.13
Portugal	1-Oct-95	-11.48	1.32
Portugal	10-Oct-99	-17.18	2.61
Romania	20-May-90	-21.77	10.17
Romania	27-Sep-92	8.23	3.64
Romania	3-Nov-96	-13.63	5.80
Romania	26-Nov-00	-7.47	1.90
Slovakia	9-Jun-90	-2.47	5.57
Slovakia	6-Jun-92	2.78	7.14
Slovakia	30-Sep-94	0.28	2.49
Slovakia	30-Sep-98	0.58	2.17
Slovakia	20-Sep-02	22.41	2.57
Slovenia	8-Apr-90	-1.28	2.94
Slovenia	6-Dec-92	2.60	7.98
Slovenia	10-Nov-96	-7.07	6.78
Slovenia	15-Oct-00	6.90	6.32
Spain	15-Jun-77	-4.99	3.37
Spain	1-Mar-79	-5.16	3.05
Spain	28-Oct-82	-9.80	1.91
Spain	22-Jun-86	-7.05	3.18
Spain	29-Oct-89	-21.47	2.48
Spain	6-Jun-93	-22.91	4.21
Spain	3-Mar-96	-2.36	1.24
Spain	12-Mar-00	-0.70	1.23
Sweden	17-Sep-44	-10.38	7.46
Sweden	19-Sep-48	-22.02	9.08
Sweden	21-Sep-52	-15.89	9.47
Sweden	26-Sep-56	-32.61	4.60
Sweden	1-Jun-58	-11.02	4.05
Sweden	18-Sep-60	-49.49	5.86
Sweden	20-Sep-64	-47.44	2.70
Sweden	15-Sep-68	-44.14	6.51
Sweden	20-Sep-70	-41.39	6.78
Sweden	16-Sep-73	-9.41	9.57
Sweden	19-Sep-76	-12.49	6.58
Sweden	16-Sep-79	-17.62	3.80
Sweden	19-Sep-82	-20.07	6.42
Sweden	15-Sep-85	-13.28	8.25
Sweden	18-Sep-88	-20.92	6.84
Sweden	15-Sep-91	-2.57	7.52
Sweden	18-Sep-94	26.60	3.76
Sweden	21-Sep-98	-1.62	4.96
Sweden	15-Sep-02	-10.37	4.95
Other			
Albania	31-Mar-91	15.67	5.02
Albania	22-Mar-92	15.88	3.38
Albania	26-May-96	7.53	2.24
Albania	29-Jun-97	4.70	5.44
Armenia	5-Jul-95	6.90	5.76
Armenia	30-May-99	-1.29	7.87
Armenia	25-May-03	13.32	7.07
Australia	28-Sep-46	2.17	2.98
Australia	10-Dec-49	1.51	2.64
Australia	28-Apr-51	-3.32	3.28
Australia	29-May-54	1.81	2.83
Australia	10-Dec-55	5.39	10.08
Australia	22-Nov-58	-7.02	5.07
Australia	9-Dec-61	16.07	12.14
Australia	30-Nov-63	-15.52	4.74
Australia	26-Nov-66	-14.15	3.63
Australia	25-Oct-69	-11.65	3.06
Australia	2-Dec-72	16.51	4.37
Australia	18-May-74	5.98	7.17
Australia	13-Dec-75	18.16	3.67
Australia	10-Dec-77	5.30	2.97
Australia	18-Oct-80	9.77	3.33
Australia	5-Mar-83	14.91	3.04
Australia	1-Dec-84	14.66	2.45
Australia	11-Jul-87	10.11	2.92
Australia	24-Mar-90	1.16	3.55
Australia	13-Mar-93	16.98	2.14
Australia	2-Mar-96	15.93	2.00
Australia	3-Oct-98	39.47	3.79
Australia	10-Nov-01	17.48	4.35
Azerbaijan	12-Nov-95	9.38	13.71
Azerbaijan	5-Nov-00	14.77	5.26

Country	Election	Median voter	Std error
Belarus	29-Nov-95	1.23	5.61
Bosnia-Herz.	18-Nov-90	40.90	5.98
Bosnia-Herz.	14-Sep-96	37.57	5.02
Bosnia-Herz.	12-Sep-98	-0.90	6.21
Bosnia-Herz.	11-Nov-00	15.39	7.23
Canada	11-Jun-45	-2.73	7.17
Canada	27-Jun-49	9.83	2.75
Canada	10-Aug-53	-6.12	5.33
Canada	10-Jun-57	7.51	5.08
Canada	31-Mar-58	-1.45	4.86
Canada	18-Jun-62	-5.70	10.55
Canada	8-Apr-63	-0.34	5.86
Canada	8-Nov-65	-12.76	5.03
Canada	25-Jun-68	-9.39	2.98
Canada	30-Oct-72	-11.95	5.51
Canada	8-Jul-74	2.42	5.92
Canada	22-May-79	0.61	4.34
Canada	18-Feb-80	0.56	2.69
Canada	4-Sep-84	0.82	6.34
Canada	21-Nov-88	-4.80	7.33
Canada	25-Oct-93	5.17	3.18
Canada	2-Jun-97	7.94	4.06
Canada	27-Nov-00	-10.36	5.92
Georgia	11-Oct-92	9.63	8.87
Georgia	5-Nov-95	24.97	9.29
Georgia	31-Oct-99	27.90	4.69
Georgia	28-Mar-04	-5.41	4.78
Iceland	30-Jun-46	-8.45	5.61
Iceland	23-Oct-49	33.99	6.17
Iceland	28-Jun-53	33.88	5.67
Iceland	24-Jun-56	9.55	8.86
Iceland	28-Jun-59	25.19	8.35
Iceland	25-Oct-59	29.47	7.85
Iceland	9-Jun-63	16.17	5.98
Iceland	11-Jun-67	7.97	10.18
Iceland	13-Jun-71	-13.69	10.33
Iceland	30-Jun-74	41.15	7.68
Iceland	25-Jun-78	-1.67	7.38
Iceland	2-Dec-79	0.09	7.64
Iceland	23-Apr-83	27.60	6.13
Iceland	25-Apr-87	-7.09	4.79
Iceland	20-Apr-91	30.12	5.38
Iceland	8-Apr-95	-17.51	4.59
Iceland	8-May-99	-5.32	4.62
Israel	25-Jan-49	0.87	10.18
Israel	30-Jul-51	-2.84	6.83
Israel	26-Jul-55	12.74	6.67
Israel	3-Jul-59	13.05	11.25
Israel	15-Aug-61	8.41	6.85
Israel	2-Nov-65	-9.87	9.31
Israel	28-Oct-69	3.25	13.12
Israel	31-Dec-73	5.13	7.53
Israel	17-May-77	5.21	7.25
Israel	30-Jun-81	19.75	4.40
Israel	23-Jul-84	23.08	12.38
Israel	1-Nov-88	8.02	22.43
Israel	23-Jun-92	11.88	17.25
Israel	29-May-96	22.13	14.37
Israel	17-May-99	6.64	12.83

Country	Election	Median voter	Std error
Japan	20-Nov-60	7.34	5.75
Japan	21-Nov-63	13.13	6.57
Japan	29-Jan-67	-25.87	5.65
Japan	27-Dec-69	-8.89	5.53
Japan	10-Dec-72	-26.06	8.11
Japan	5-Dec-76	-12.28	8.21
Japan	7-Oct-79	-23.04	5.31
Japan	22-Jun-80	-23.28	5.77
Japan	18-Dec-83	-1.05	6.86
Japan	6-Jul-86	6.56	5.70
Japan	18-Feb-90	-17.18	5.83
Japan	18-Jul-93	-11.04	7.44
Japan	20-Oct-96	-6.89	7.65
Japan	25-Jun-00	-2.49	7.13
Macedonia	11-Nov-90	5.15	4.68
Macedonia	16-Oct-94	-13.48	4.36
Macedonia	18-Oct-98	9.55	3.48
Mexico	1-Jul-46	6.91	2.83
Mexico	3-Jul-49	50.00	5.00
Mexico	6-Jul-52	50.00	5.00
Mexico	1-Jul-55	4.19	3.42
Mexico	6-Jul-58	50.00	5.00
Mexico	1-Jul-61	4.77	2.67
Mexico	5-Jul-64	1.35	1.96
Mexico	1-Jul-67	50.00	5.00
Mexico	5-Jul-70	11.04	5.70
Mexico	1-Jul-73	39.31	4.79
Mexico	1-Jul-76	10.00	2.26
Mexico	1-Jul-79	-13.29	3.07
Mexico	4-Jul-82	-1.37	3.12
Mexico	7-Jul-85	-10.44	3.36
Mexico	6-Jul-88	-2.04	3.27
Mexico	18-Aug-91	18.25	3.92
Mexico	21-Aug-94	-9.17	1.99
Mexico	6-Jul-97	-6.88	1.38
Mexico	2-Jul-00	-1.43	3.04
Moldova	27-Feb-94	3.57	3.53
Montenegro	9-Dec-90	1.30	4.98
Montenegro	20-Dec-92	7.95	4.52
Montenegro	3-Nov-96	12.71	3.88
Montenegro	31-May-98	8.67	4.25
New Zealand	27-Nov-46	17.24	3.30
New Zealand	30-Nov-49	-10.72	2.57
New Zealand	1-Sep-51	6.67	4.53
New Zealand	13-Nov-54	-18.42	11.36
New Zealand	30-Nov-57	-23.06	11.93
New Zealand	26-Nov-60	-10.47	3.29
New Zealand	30-Nov-63	-14.28	5.72
New Zealand	26-Nov-66	-11.87	1.96
New Zealand	29-Nov-69	-18.77	5.25
New Zealand	25-Nov-72	-15.34	2.24
New Zealand	29-Nov-75	-5.09	2.01
New Zealand	25-Nov-78	-10.07	3.21
New Zealand	28-Nov-81	-1.99	2.79
New Zealand	14-Jul-84	5.22	3.28
New Zealand	15-Aug-87	-16.07	2.82
New Zealand	27-Oct-90	0.85	2.26
New Zealand	6-Nov-93	-10.76	2.75
New Zealand	12-Oct-96	-23.02	6.00

Country	Election	Median voter	Std error
New Zealand	27-Nov-99	1.30	2.52
New Zealand	27-Jul-02	-10.66	6.31
Norway	8-Oct-45	-14.11	4.53
Norway	10-Oct-49	-22.18	5.77
Norway	12-Oct-53	-26.74	5.32
Norway	7-Oct-57	-17.95	6.30
Norway	11-Sep-61	-23.03	3.89
Norway	12-Sep-65	-36.85	1.92
Norway	7-Sep-69	-33.26	3.03
Norway	9-Sep-73	-24.08	1.67
Norway	11-Sep-77	-20.64	2.26
Norway	14-Sep-81	-15.60	1.58
Norway	8-Sep-85	-17.81	1.79
Norway	11-Sep-89	-21.68	1.40
Norway	13-Sep-93	-16.39	1.21
Norway	16-Sep-97	-9.63	1.46
Norway	10-Sep-01	-20.59	0.98
Russia	12-Dec-93	16.24	6.12
Russia	17-Dec-95	15.25	4.18
Russia	19-Dec-99	44.64	4.79
Russia	7-Dec-03	-2.15	4.67
Serbia	9-Dec-90	8.94	6.89
Serbia	20-Dec-92	21.66	4.40
Serbia	19-Dec-93	43.93	5.76
Serbia	21-Sep-97	27.82	3.64
Serbia	23-Dec-00	4.19	3.77
Sri Lanka	1-Jan-47	50.00	5.00
Sri Lanka	1-Jan-52	-7.87	4.54
Sri Lanka	1-Apr-56	-14.91	5.94
Sri Lanka	1-Jul-60	-18.04	4.40
Sri Lanka	1-Mar-65	-2.32	4.30
Sri Lanka	1-May-70	-18.58	2.49
Sri Lanka	1-Jul-77	-16.03	1.95
Switzerland	26-Oct-47	13.24	3.70
Switzerland	28-Oct-51	11.50	6.57
Switzerland	30-Oct-55	18.01	6.49
Switzerland	25-Oct-59	13.13	4.23
Switzerland	27-Oct-63	8.24	6.80
Switzerland	29-Oct-67	6.01	5.15
Switzerland	31-Oct-71	-0.09	2.63
Switzerland	26-Oct-75	5.31	3.36
Switzerland	21-Oct-79	-0.57	3.60
Switzerland	23-Oct-83	1.53	4.37
Switzerland	18-Oct-87	-0.49	2.82
Switzerland	20-Oct-91	-10.96	3.92
Switzerland	22-Oct-95	10.79	13.93
Switzerland	24-Oct-99	22.64	2.90
Switzerland	19-Oct-03	16.79	4.65
Turkey	14-May-50	29.91	4.09
Turkey	2-May-54	38.45	4.18
Turkey	27-Oct-57	37.56	3.68
Turkey	15-Oct-61	-3.50	1.85
Turkey	10-Oct-65	-12.37	2.21
Turkey	12-Oct-69	0.72	1.41
Turkey	14-Oct-73	-5.98	2.29
Turkey	5-Jun-77	19.20	2.55
Turkey	6-Nov-83	-2.53	4.42
Turkey	29-Nov-87	5.85	2.28
Turkey	20-Oct-91	9.62	2.18
Turkey	24-Dec-95	16.59	3.55
Turkey	18-Apr-99	13.16	3.00
Ukraine	10-Apr-94	-0.29	7.07
Ukraine	29-Mar-98	2.95	6.04
Ukraine	30-Mar-02	-5.28	9.43

Chapter 3

Endogenous Preferences: The Political Consequences of Economic Institutions

3.1 Introduction

Why is it that over time certain societies have voted significantly more left, and others significantly more right on the standard political spectrum? Indeed, a simple look at countries' voting records reveals striking left-right patterns. This is the question that animates this paper. In fact, Downs' seminal *An Economic Theory of Democracy* [Downs, 1957, p. 140] left us this question as a research agenda:

> What forces shape this important parameter [the aggregate distribution of preferences]? At the beginning of our study, we assumed that voters' tastes are fixed, which means that the voter distribution is

given. Thus we dodged the question just posed and have been evading it ever since.

Downs' observation could not have been more prophetic. Despite pioneering attempts [Lipset and Rokkan, 1967], it would appear that there still is no account in political science or economics that provides a satisfactory explanation for the cross-national variation in political preferences. Slow progress on this question, however, is probably less a sign of stagnant scholarship than it is an indication of the richness of this question. Many studies have consistently taken voter preferences as the dependent variable. The literatures on economic voting [Lewis-Beck and Paldam, 2000], the electoral gender gap [Inglehart and Norris, 2000], and genopolitics [Alford, Funk and Hibbing, 2005; Fowler, Baker and Dawes, 2008; Settle et al., 2010] continue to uncover important insights. Yet by the sheer nature of their key explanatory variable they cannot provide explanatory power for cross-national variation. This is to say that there are no countries that have a markedly female or male biased population[1]; nor are there countries where the fluctuations in economic performance could be considered structurally different from any other country. Similarly, it is not yet known whether particular genes such as the dopamine receptor D4 gene (DRD4-7R), that is associated with a lib-

[1]To illustrate, Powdthavee and Oswald [2010] look at the impact of having one or more daughters on individuals' voting behaviour. Their finding is that having daughters moves people to vote leftist. Sadly enough for left parties there are an approximately equal number of girls and boys being born. Unless there are many more girls being born in Scandinavia, such studies do not help explain cross-national differences in voting behaviour.

eral political ideology, is more widespread in some countries than others in light of genetic ancestry. As it turns out, the economic voting and electoral gender gap literatures may not sufficiently consider the potential impact that the accumulated institutions of the political economy may have on their individual subjects' voting behaviour. Given the results discussed later this could be an important source of omitted variable bias.[1] Needless to say that there is also a lot of work that discusses electoral behaviour within individual countries [Campbell et al., 1960; Caplan, 2008; Gelman et al., 2008]. But these country specific accounts do not have the ambition to provide explanatory power for a larger set of countries.

A large number of studies use left-right partisanship as an explanatory variable when looking at a variety of phenomena including macroeconomic performance [Alvarez, Garrett and Lange, 1991; Kenworthy, 2006], redistribution [Alesina and Glaeser, 2004; Allan and Scruggs, 2004; Iversen and Soskice, 2006, 2009; Persson and Tabellini, 2003, 2004] and wage setting [Johansen, Mydland and Strom, 2007]. When the more recent studies observed the prevalence of either left or right politics they pointed to the importance of electoral systems and coalition dynamics [Iversen and Soskice, 2006, 2009; Iversen and Stephens, 2008] or the strength and centralization of labour unions [Alesina and Glaeser, 2004]. But then these

[1] One of few notable exceptions is Edlund and Pande [2002]. They show that women in the US vote more for the Democratic Party than men do. Their argument rests on the interaction between a decline in marriage and the provision of social security and they include a battery of economic control variables for robustness. While their analysis is restricted to the US, it may provide insights into cross-national differences in voting behaviour if marriage declines and social security are substantially different across countries.

authors used such observations as a means to explaining levels of redistribution and social spending.

This brief review of the literature indicates that there is little research that directly engages the cross-national trajectories in voting behaviour. A general model for voting behaviour ought to be a central topic in comparative political economy. As Campbell et al. [1960, p. 397] observed, when the data are available then "political behaviour is the ultimate dependent variable in our theoretical scheme."

This paper starts by introducing a new data set for the ideological position of the electoral center—the median voter—that corrects for stochastic error in the widely used statistics from the Comparative Manifesto Project. These aggregated voter preferences serve as the dependent variable. Next, attention turns to how political economies vary across countries and whether this explains the variety in voting records. Those economic institutions are considered whose salience is important in differentiating among political economies. Labour organization, skill specificity, and public sector employment are such key economic institutions that allow for distinguishing between the more coordinated and liberal market economies. It will be argued that these particular institutions also influence the political preferences of the individuals that they touch. Of course, over time economic institutions are generated by a society of people with an ex ante set of preferences, hence the empirical analysis employs an instrumental variable

strategy to deal with reverse causality. Significant results show that at least since 1960 voter preferences have been endogenous to the economic institutions of their political economy. The discussion of the empirical results also sheds light on some recent findings in Political Economy and illustrates the principal argument with a short case study of the UK under Margaret Thatcher. The logical implications that follow from the analysis are stated when the paper concludes.

3.2 Voter preferences

Ever since the seminal work by Black [1948] and Downs [1957] introduced the concept of the median voter, or the ideological position of the electoral center, the concept has figured widely across literatures. While conceptually prominent, few median voter arguments have been supported with robust data. This paper introduces a new, updated, and improved data set for revealed voter preferences. The data set employs the statistics provided by the Comparative Manifesto Project [Budge et al., 2001; Klingemann et al., 2006] but corrects for stochastic error building on the work by Benoit, Laver and Mikhaylov [2009].

The Comparative Manifesto Project (CMP) codified all sentences of every election manifesto to place parties on a left-right scale. The data are collected such that each statement is assigned to either a pro-left or a pro-right category. The scaling consists in subtracting the sum of percentage references to categories

grouped as left from the sum of percentage references to categories grouped as right. Consequently, negative scores represent a generally left position, whereas positive scores are reflective of a right position. While use of the CMP data set is widespread, it is not without its critics. Most criticism centers on errors in CMP measurement because of the stochastic features of text generation and text coding processes. Recent contributions on the limits of the CMP include Benoit and Laver [2006], Edwards [2006], Hans and Hönnige [2008], Mikhaylov, Benoit and Laver [2008], and Benoit, Laver and Mikhaylov [2009]. Treating words as data with error, Benoit, Laver and Mikhaylov [2009] proceed by bootstrapping the analysis of every coded manifesto. By way of these simulations they reconstruct the stochastic processes that generated these political texts. In doing so they are able to estimate degrees of non-systematic error for the thousands of manifestos coded by the CMP. The use of these standard errors allows for better empirical and theoretical inferences from the CMP data. The bootstrapping work by Benoit, Laver and Mikhaylov [2009] also allows for generating new data estimates of party policy positions. The alternative estimate for a party policy position then becomes the mean estimator of the bootstrap simulations that were drawn for each manifesto. These new data for party policy positions calibrate for stochastic error in the CMP.[1]

[1]The Benoit, Laver and Mikhaylov [2009] data set with CMP statistics, uncertainty measures, and bootstrapping mean estimators ("rilemean") for party positions are available at http://www.kenbenoit.net/

This paper makes use of these new and corrected party policy positions. By linking these data to electoral results using the Kim-Fording methodology [Kim and Fording, 1998, 2003] we arrive at statistical measures for revealed voter preferences. The position of the median voter is computed from vote shares for the ideologically ranked parties. This is done by first ranking the parties by ideological score for every election in each country. Then for each party the interval where its supporters are located is tabulated by locating the midpoints between the ideologically neighboring parties. Assuming that voters choose the candidate or party that is ideologically closest to them, a party will attract the votes of those that are part of the interval that surrounds that party. The assumption that voting behaviour is an expression of preferences or beliefs is common [Coate and Conlin, 2004; Mullainathan and Washington, 2009]. Still, it is important to underscore that this assumption implies a disregard of the part of the electorate that may vote strategically rather than ideologically.[1] Finally, the electoral results for each party at every election are matched to produce the percentage of the electorate that is grouped into each ideological interval. As Kim and Fording [2003, p. 96] point out, their method requires us "to conceive of elections as large-scale opinion polls." Where the ballot acts as a survey in which the subject chooses the party that is ideologically closest on the partisan left-right spectrum.

[1] Stevenson [2001] notes that estimates of the importance of strategic voting rarely attain 10%.

As such, it is possible to treat election results as a grouped frequency distribution and tabulate a median statistic. The results range between -100 (extreme left) and +100 (extreme right) and non-election values are interpolated linearly. An accompanying research paper provides more detail on the precise tabulations to build these new median voter statistics, compares these data with survey-based measures, and extends the data set to over 50 democracies. The research paper and the data set are available online and from the author. Figure 3.1 shows the resulting left-right positions of 18 Western democracies averaged over 1960-2003.

It is important to highlight the fact that the median voter statistics are derived indirectly via party policy positions and their success at the election polls, and not from direct evidence of voter opinions. However, as noted by Pontusson and Rueda [2007, p. 13], "it seems quite accurate to think of the position of the median voter as being constructed by parties in competition with each other." Furthermore, given the inherent difficulties in employing survey data for cross-national and historic analyses of voter preferences, these median voter data may be a reasonable alternative. First, historic survey data may not be available for a number of countries. Second, left-right self-placement may not allow for cross-national analysis as subjective notions of the political center vary quite dramatically across countries. Finally, as explained in McDonald and Budge [2005] "an additional problem with relying on survey data to measure citizens' ideologies is that strong evidence exists that citizens' Left-Right self-placements

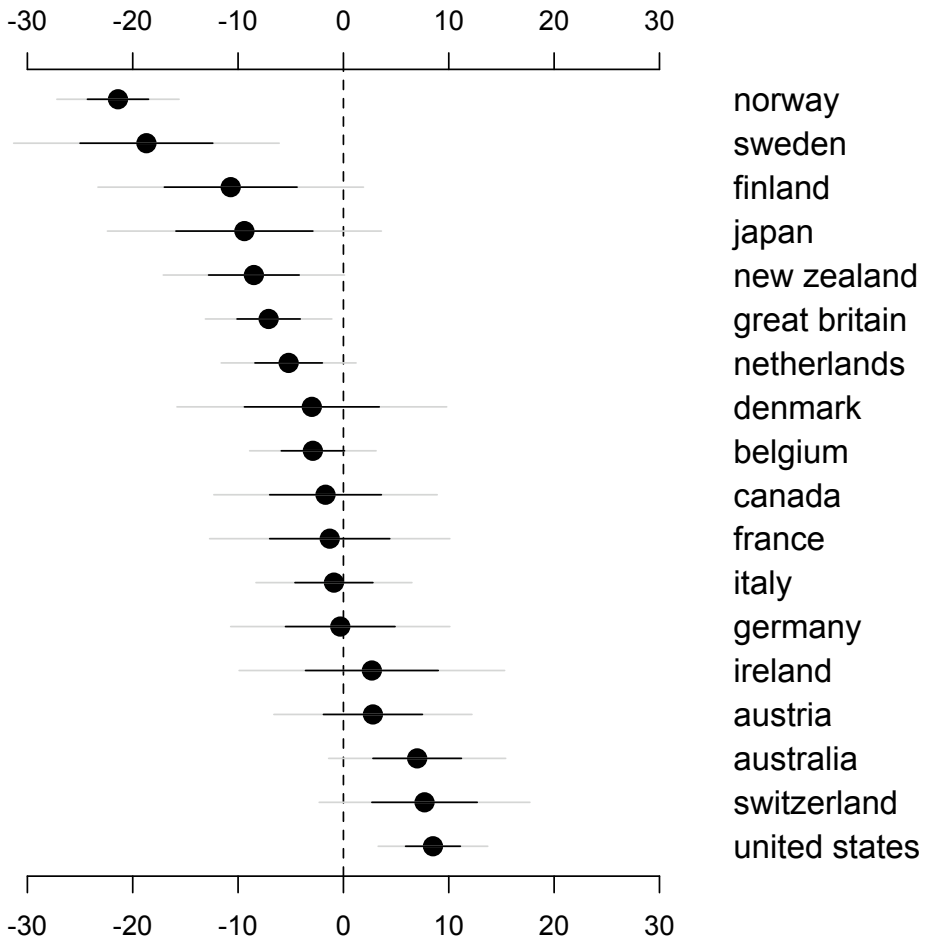


Figure 3.1: The Median Voter (1960-2003)

are subject to *assimilation* effects, that is, that citizens tend to place themselves unduly close to parties they like for non-policy-related reasons." Empirical issues such as the above may make the use of public opinion polling often inadequate and, hence, the usefulness of the median voter data as developed here.

As a check, this paper also runs its empirical and graphical analyses using a second measure of voter preferences; the Electoral Center of Gravity as devised by Cusack [1997].[1] The CMP-based measures have more clout because of their detail and comprehensiveness but the Cusack indicator also provides time series from 1960. The underlying data sets have been widely used and evaluated in the literature [Bakker, Edwards and de Vries, 2005; Edwards, 2006; Gabel and Huber, 2000; Hix, Noury and Roland, 2006; Pontusson and Rueda, 2007; Powell, 2000].

3.3 Economic institutions and voter preferences

Could the economic institutions of a political economy be a key to understanding the position of their median voter or the electoral center of gravity? As Frey [1990, p. 446] noted: "[T]he comparative analysis of institutions is able to solve long-standing theoretical problems which so far have not been treated in a satisfactory

[1]The electoral center of political gravity measures are developed by Cusack [1997] who, in turn, used the Gross and Sigelman [1984] index on electoral results, legislative seat distribution, and cabinet seat distribution, as well as data on the ideological position of parties based on expert survey data by Castles and Mair [1984].

way." By now, economists and political scientists have realized the importance of institutions in shaping economic performance [Acemoglu, Johnson and Robinson, 2001; North, 1990; Platteau, 2000], the level of redistribution [Alesina and Glaeser, 2004; Iversen and Soskice, 2006; McCarty and Pontusson, 2009; Persson and Tabellini, 2004], and cultural behaviour [Bowles, 1998]. An institutional analysis of voting behaviour could produce equally important insights.[1]

This paper uses the cooperative institution index [Hicks and Kenworthy, 1998; Kenworthy, 2006] and the coordination index [Hall and Gingerich, 2009] as metrics for the accumulated economic institutions in a political economy. These measures also allow for a more sophisticated way of distinguishing between coordinated market economies (CMEs) and liberal market economies (LMEs) as described by Hall and Soskice [2001] in *Varieties of Capitalism*. They proposed a distinction between two clusters of capitalist economies on the basis of the means that firms and other actors use to coordinate their actions across the political economy. CMEs have firms primarily employ more strategic means of interact-

[1]Economic and democratic institutions have their origins. Understanding the development of the institutions in the political economy is important scholarship and key references would include Acemoglu and Robinson [2006]; Acemoglu, Johnson and Robinson [2001], Alesina and Glaeser [2004], Cusack, Torben and Soskice [2007], Robinson and Torvik [2008]. This paper does not dwell on the development of institutions, but presumes institutional inertia. Most of the aforementioned accounts trace back the origins of institutions to the end of the 19th and start of the 20th century. The fact that the indicator for economic structure and organization circa 1900 [Cusack, Torben and Soskice, 2007] strongly correlates with the more current index for coordination [Hall and Gingerich, 2009] and the cooperative institution index [Hicks and Kenworthy, 1998; Kenworthy, 2006] would lend credence to the notion of institutional path dependency [North, 1990; Pierson, 2004] and, hence, institutional inertia. See Table 3.1 for a correlations table of the key variables used in this paper.

ing with labor organizations, financial institutions, and other actors across the domestic political economy. LMEs rely more heavily on competitive markets to coordinate relations between firms and other actors. Hall and Soskice [2001, p. 20] describe and list CMEs (e.g. Sweden, Austria, Germany) and LMEs (e.g. USA, UK, Australia).

Making parallel use of the coordination and cooperation indices allows for two proxies for CMEs and LMEs as well as a robustness check. Hall and Gingerich constructed the coordination index specifically to assess the degree to which countries rely on market or strategic coordination across the different spheres of their political economy. The index incorporates data from the 1990-1995 period on corporate governance (shareholder power, dispersion of control, size of stock market) and labor relations (level of wage coordination, degree of wage coordination, labor turnover). These measures for corporate governance and labor relations are then loaded in the coordination index. The Hicks-Kenworthy cooperative institution index made a scoring of the degree of cooperation in nine spheres: (a) relations among firms across industries; (b) relations among unions; (c) relations between the state and interest groups; (d) relations among firms and investors; (e) relations among firms and suppliers; (f) relations among competing firms; (g) relations between labour and management; (h) relations among workers; and (i) relations among functional departments within firms. Unlike the coordination index, Hicks and Kenworthy looked at a longer time frame when developing their

cooperative institution index (1960-1994). Their effort will allow for a longitudinal analysis later on.

Figure 3.2 presents scatter plots with linear fits for the coordination and cooperation indices on the two aforementioned voting measures: the median voter and the electoral center of gravity. The result shows four variations on a theme. The theme being the close association between left-right voting behaviour and the level of coordination across the economic institutions of the political economy.

Next the paper considers three economic institutions that can be linked more directly to individual voting behaviour and that are part and parcel in distinguishing CMEs from LMEs. The salience of labour organization, skill specificity, and public sector employment typify political economies and are all correlated (positively) with the overall level of coordination as reported in Table 3.1. The arguments that follow aim to show how these specific economic institutions influence individual interests and lock in electoral preferences. Aggregating these politically aligned micromotives results in the macrobehaviour that explains the left-right voting patterns that developed over time across the 18 OECD nations considered.

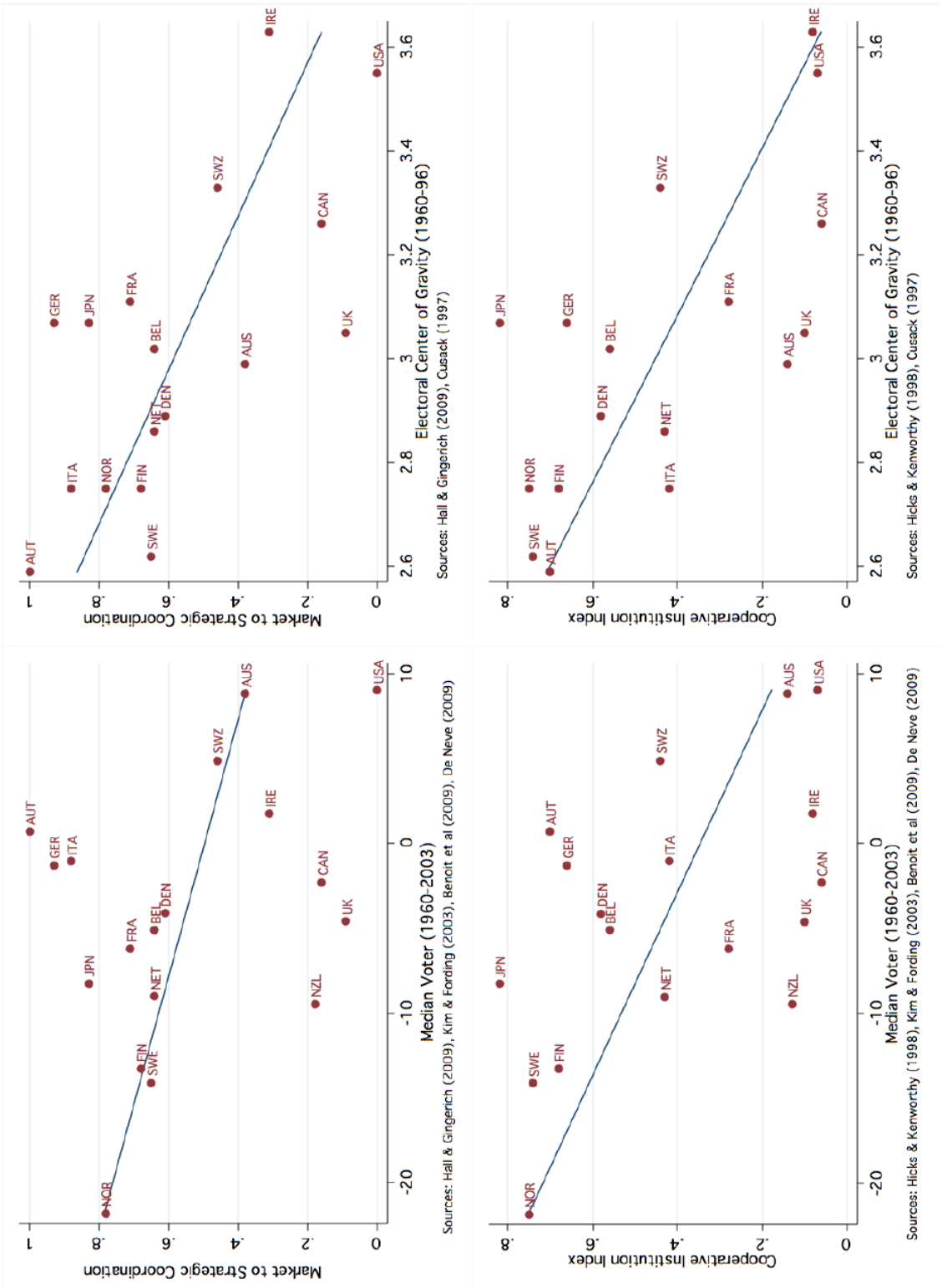


Figure 3.2: Economic Institutions and Voter Preferences

Table 3.1: Correlations Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Median Voter 1960-2003	1.00							
(2) Electoral Center of Gravity 1960-97	0.62	1.00						
(3) Coordinated/Liberal Market Economy	-0.55	-0.63	1.00					
(4) Coordination 1990s (Hall-Gingerich)	-0.46	-0.67	0.86	1.00				
(5) Cooperation 1960-1989 (Hicks-Kenworthy)	-0.64	-0.70	0.93	0.91	1.00			
(6) Coordination circa 1900	-0.46	-0.61	0.93	0.78	0.80	1.00		
(7) Skill specificity	-0.60	-0.48	0.82	0.74	0.78	0.78	1.00	
(8) Wage setting score 1960-94	-0.46	-0.77	0.87	0.95	0.88	0.83	0.71	1.00
(9) Government employment	-0.46	-0.48	0.08	-0.01	0.19	0.19	0.01	0.08

3.3.1 Skill specificity

In an important contribution to our understanding of the political economy, Estevez-Abe, Iversen and Soskice [2001] show that CMEs depend more on industry- and firm-specific skills than LMEs. The workforce of the latter type of political economies, however, is characterized by more generalist skills. Empirically, the levels of skill specificity can be shown by looking at the importance of vocational training and the degree of labor turnover at firms. More vocational training systems and longer levels of firm tenure are indicative of greater skill specificity. When a worker invests in more specific skills he or she must have some reassurance that the lessened transferability of those labour skills will not lead to an expected revenue stream with increased risk and volatility. To insure against the possibility of longer periods of unemployment and, in effect, smooth out the expected

revenue stream it would be in the worker's interest to have reasonable unemployment benefit packages in place if needed. Such policy preferences are precisely what Iversen and Soskice [2001] and Iversen [2005] find when producing estimates that show, controlling for income, that the demand for social spending is strongly associated with skill specificity for all OECD countries.[1] The same argument is further developed in Kitschelt and Rehm [2005], Cusack and Rehm [2006], McCarty and Pontusson [2009], Anderson and Pontusson [2007], and Iversen and Stephens [2008]. Because the higher levels of skill specificity in CMEs are associated with the demand for robust unemployment policies across the social strata, this paper suggests that such preferences should translate into over-proportional support for leftist politics. Figure 3.3 shows the scatter plots for skill specificity on the median voter and the electoral center of gravity. The linear fits indicate a negative correlation between skill specificity and right partisan preferences.

[1] An important clarification is warranted. This paper does not intend to confuse coordination across the economic institutions with the welfare state and redistributive policies. The work by Persson and Tabellini [2004], Allan and Scruggs [2004], and Alesina and Glaeser [2004] indicates that electoral institutions are at the origins of the welfare state. The empirical analysis in this paper includes electoral institutions (electoral district magnitudes) and economic institutions (by way of the coordination and cooperation indices), hence it is not warranted to include a control variable for the welfare state. Also because the salient institutions of the political economy predate the welfare state, this paper considers the variety in accumulated institutions as being inclusive of the variety in welfare policies. The fact that there would be collinearity between these variables is an indication that they would be measuring overlapping effects.

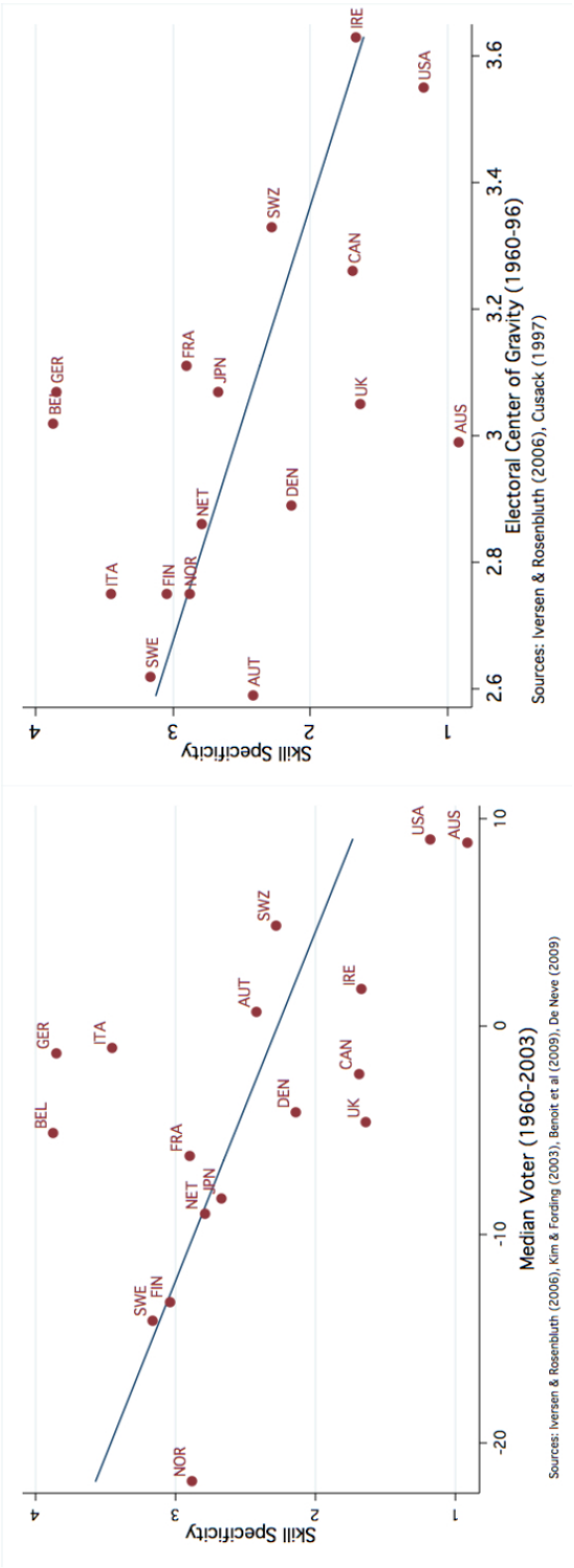


Figure 3.3: Skill Specificity and Voter Preferences

3.3.2 Labour organization

The empirical literatures in economics and political science come together on the fact that strong labour organization and coordinated wage bargaining leads to wage compression and less inequality [Acemoglu, 2002; Acemoglu, Aghion and Violante, 2001; Aghion and Durlauf, 2005; Iversen and Stephens, 2008; Krugman, 1994; Scheve and Stasavage, 2009]. Acemoglu, Aghion and Violante [2001] suggest that sweeping skill-biased technological change has substantially reduced the incentives for skilled workers to remain in a coalition of union workers. The result of this dynamic is general deunionization and a serious increase in inequality. This logic is intuitively appealing and widely applicable but they seem to disregard, however, the fact that labour organization in some CMEs has not declined. Kwon and Pontusson [2008] find that a number of countries have kept a relatively stable level of unionization (Belgium, Denmark, Finland, Norway, and Sweden). This would imply then that there are a vast number of skilled workers that opt to remain in a situation of coordinated wage bargaining. This raises the obvious question: which skilled workers would be willing to remain in a heterogenous coalition of unionized workers and accept a paycut? Iversen and Stephens [2008] point towards the protection of skill investments and the possibility to be rehired elsewhere at the same wage. But they, nor any other authors, have adequately dealt with the proposition by Acemoglu et al that the increased returns

to skills have substantially lowered the incentives for skilled workers to be part of a larger union. It would appear that neither discipline is able to formulate a truly satisfying answer to the question just posed.

Combining the key insights from the aforementioned arguments, this paper offers a slightly different account. Given its cross-national salience, it is important to consider the level of skill specificity of the individual as he or she enters a (hypothetical) wage bargaining situation with a potential employer. Having gone through multiple years of specialized or vocational training this individual has a reduced set of employment possibilities and greater risk exposure to market volatility. The result of being less flexible on the job market is that the individual with a high degree of skill specificity is more likely to be in a disadvantaged bargaining position as compared to the generalist. In order to offset this bargaining disadvantage—and the insecurity that comes with it—there is a clear interest in being part of a larger countervailing power notwithstanding the wage compression that this entails [Galbraith, 1956]. In effect, Bender and Sloane [1999] showed that unionized workers feel more secure in their jobs and Anderson and Pontusson [2007] find that the social protection measures that unions fight for effectively reduce employment insecurity. It is also important to note that Acemoglu and Pischke [1999] found that unionization and wage coordination are associated with higher levels of training. This reinforces the situational lock-in of skill-specific workers and their associated set of interests. In contrast, the

more flexible generally skilled person is less likely to face a disadvantaged wage bargaining position when negotiating at the individual or firm level. Moreover, because standardized wages would disable the pursuit of more lucrative opportunities elsewhere this person has no interest whatsoever in coordinated wage bargaining.[1]

The partisan agenda that best serves the demands for unionization and wage coordination would presumably be the politics of the left. Johansen, Mydland and Strom [2007] show that government colour matters in the coordination of wage bargaining. For the case of Norway, they show empirically that coordinated wage bargaining will only produce its effects if left partisanship is part of the equation. Returning to the larger theme of this paper, given all the above arguments it is conjectured that for political economies that maintain encompassing labour organization there will be an over-proportional number of individuals with interests aligned to left partisanship. Figure 3.4 shows scatter plots for the wage setting score [Hicks and Kenworthy, 1998] on the median voter and the electoral center of gravity. Linear fits show clear negative correlations. A high (low) degree of coordinated wage bargaining is associated with left (right) voting behaviour.

[1]It remains to say that, in general, low-skilled and unskilled workers across the different political economies continue to have a strong stake in coordinated wage bargaining as it would raise the wage level for those that are employed.

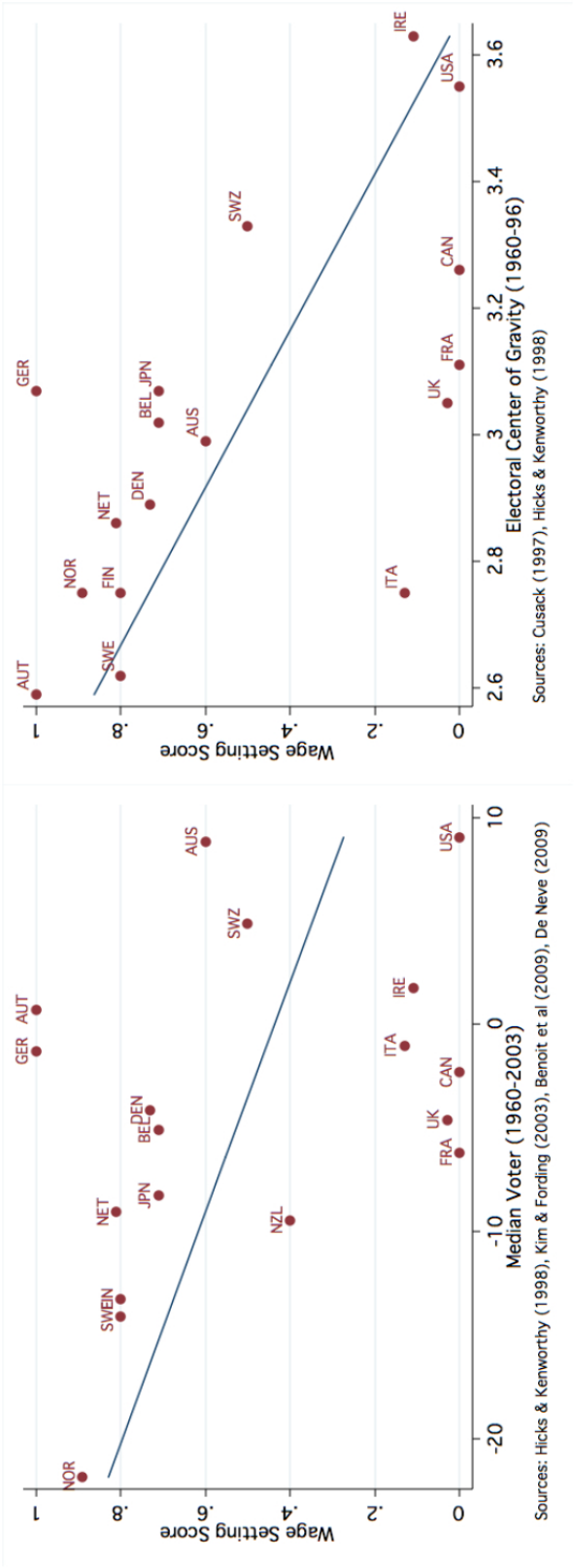


Figure 3.4: Labour Organization and Voter Preferences

3.3.3 Public sector employment

Individuals employed in the public sector have an economic self-interest in larger public budgets and are known to be more supportive of expansionary government than private sector employees [Blais, Blake and Dion, 1993*a*,*b*, 1997; Cusack and Rehm, 2006; Knutsen, 2005; Kwon and Pontusson, 2008]. Knutsen [2005, p. 594] explains that "[t]he extent to which one's own economic interests are directly linked to political decisions is perhaps the most noticeable difference between working in the public or private sector." Indeed, to a public servant a relatively large public sector means more career opportunities and economic rewards. Private sector employees and independents may also have an important stake in expansionary social policies when it benefits their economic situation, as discussed previously. However, the immediate economic fates of all private sector workers are largely contingent on the market and the ability of their organization to profit from it. The brunt of the costs associated with an expansionary government and market intervention is stomached by all individuals in the private sector. The more liberal market economies are well-known to be associated with lower tax rates, smaller government, and less interventionist policies. CMEs, on the other had, support a larger public sector. Intuitively, there would seem to be an obvious link between the political preferences of public servants and left partisanship. Kwon and Pontusson [2008] note that over the 1970s and 1980s the

left parties in many OECD countries saw the unionized public servants emerge as a core constituency. Moreover, Blais, Blake and Dion [1993*a*] tested the hypothesis that leftist government, as compared to a right-wing government, is more generous when granting wage increases to public sector employees. Their empirical study concludes that, ceteris paribus, wage increases are 10% higher under leftist governments. Figure 3.5 plots government employment as a percentage of the total labour force on the median voter and the electoral center of gravity. The linear fits show a negative relationship between government employment and right-wing voting. CMEs typically support a larger public sector, hence gathering more left partisan support. Special attention is drawn to the Scandinavian countries of Sweden, Denmark, and Norway as they would appear in a world apart when considering the public sector and left-wing voting. Indeed, their high levels of government employment could perhaps solely explain their distinct left voting behaviour, without even having to consider other complementary economic institutions.[1]

Having looked at skill specificity, labour organization, and public sector employment it would appear that there are good reasons to believe that these—and perhaps other—economic institutions jointly influence individual voting behaviour.

[1]Iversen and Rosenbluth [2008] and Iversen and Stephens [2008] note that in the Scandinavian countries an over-proportional share of the public sector draws on women. The gender equalizing policies instigated in the early 1970s (e.g. public day care centers) would partially explain the current size of the public sector, as well as female labor force participation more generally.

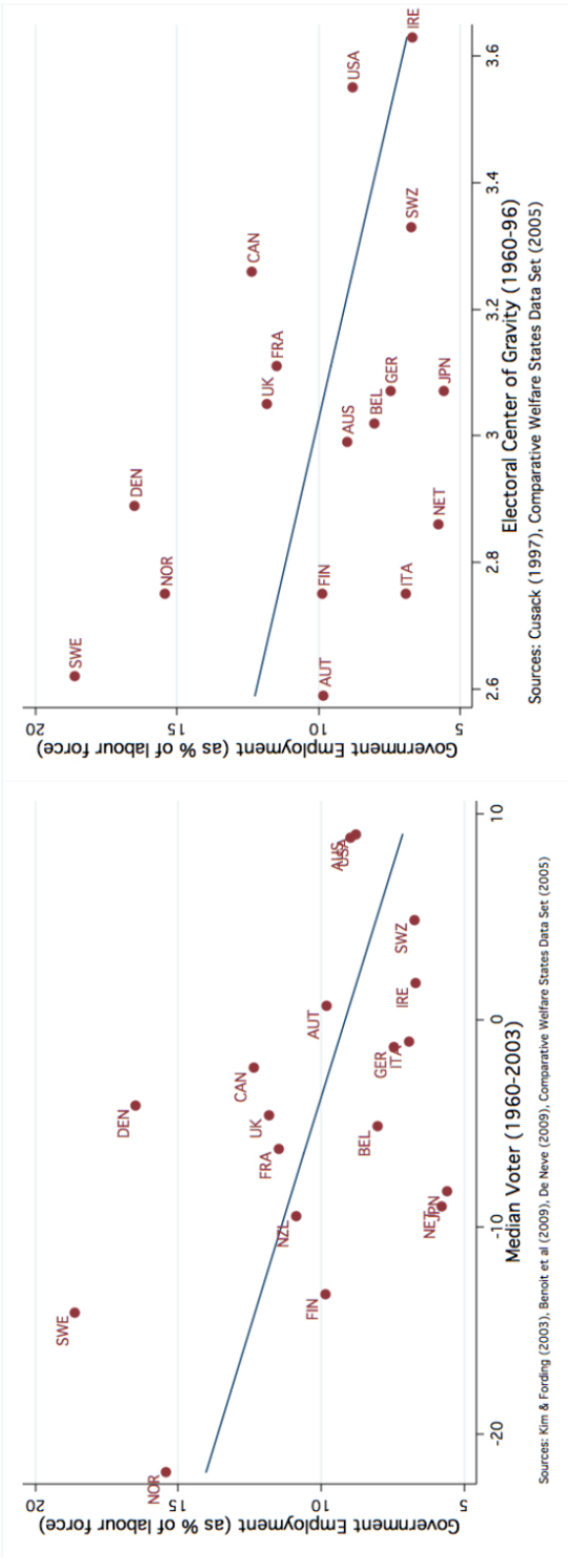


Figure 3.5: Public Sector Employment and Voter Preferences

As institutions lock in individual interests, these aligned micromotives turn into the macrobehaviour that results in distinct cross-national voting records. It is worthwhile observing that when these institutions are combined they may represent more than the mere sum of their parts. Hall and Soskice [2001] and Hall and Gingerich [2009] make a strong case for institutional complementarities when the presence of certain institutions in the political economy allows for general efficiencies when other particular institutions are also present. This fundamental observation lies at the basis for taking the level of market or strategic coordination across institutions as the proxy that best allows for distinguishing between political economies and their set of economic institutions.[1]

3.4 Empirical analysis

3.4.1 Reverse causality

Not unlike the proverbial chicken and egg problem, is there a serious risk to attribute partisan voter preferences to differences in the institutional set-up, if, in fact, partisanship may have helped produce the institutional variation across

[1]Future research will look at how the ability of partisanship to boost economic performance may be partially contingent on the variety of capitalism in which it operates. Preliminary results suggest that the more productive marriage between a CME (LME) and left governance (right governance) is expected to generate greater synergies from institutional complementarities across the political economy. In turn, this would lead to better macro-economic performance and, consequently, left (right) partisanship can expect an increased likelihood of political success by way of sociotropic economic voting.

political economies in the first place. This problem of reverse causality needs to be adequately controlled for. An instrumental variable in a two-stage least squares (2SLS) regression allows for the estimation of causal relationships in the presence of endogenous explanatory variables. The instrument cannot be correlated with the dependent variable (exclusion) but should be highly correlated with the endogenous explanatory variable for which it instruments (relevance). If so, than a 2SLS regression allows for consistent estimation [Acemoglu, Johnson and Robinson, 2001; Heckman, 2008].

This paper proposes as instrument the measure of coordination circa the year 1900 as tabulated by Cusack, Torben and Soskice [2007] for an identical set of eighteen OECD countries. This measure incorporates five indicators of early economic structure and organization.[1] Consequently, this paper posits that the level of early coordination circa 1900 in spheres of the political economy such as guild tradition and rural cooperatives have no direct effect on voting behaviour in the period 1960-2003. However, this analysis supposes an indirect effect by way of the more recent levels of economic coordination. A screening of the first-stage results of the 2SLS models shows that early economic coordination is a relevant and strong instrumental variable. The following are the first-stage results on the

[1]Equally weighted, the following five indicators are incorporated into the Cusack-Iversen-Soskice measure of coordination circa 1900: (i) guild tradition and strong local economies (source: Crouch, 1985); (ii) widespread rural cooperatives (sources: Crouch, 1985; Katzenstein, 1985); (iii) high employer coordination (sources: Thelen, 2004; Swenson, 2002; Mares, 2002); (iv) industry unions (not craft); (v) large skill-based export sector (source: Katzenstein, 1985).

endogenous regressors that are, respectively, a dummy for coordinated market economy, the Hall-Gingerich coordination index, and the Hicks-Kenworthy cooperative institution index. Shea's partial R-squared (1997) comes in at 0.74, 0.50, and 0.75. The p-values on early economic coordination are all significant at 0.012, 0.034, and 0.002. The instrument also reveals superior F-statistics at 14.6, 6.8, and 21.6 [Stock and Yogo, 2005].

The validity of the empirical results is contingent upon a satisfactory defense of the instrumental variable strategy. The obvious critique is that economic coordination circa 1900 does not satisfy the exclusion restriction and could be the result of the underlying preferences at the time and that these preferences may be correlated with today's political preferences. First, a number of scholars find that early economic coordination predates democracy and was not much affected by popular preferences [Cusack, Torben and Soskice, 2007; Thelen, 2004]. Secondly, an empirical effort is made to test for an association between voter preferences circa 1900 and voter preferences in 1960-2003. The data collection for historical election results in Western Europe around the turn of the 19th century by Caramani [2000] was extended to incorporate data from the US, Canada, Australia, and New Zealand. The left-right score on a scale of -100 (extreme left) to +100 (extreme right) was tabulated by subtracting the percentage vote share of leftist parties from the percentage vote share of conservative parties. No data was collected for Japan because it had a political ruling class at the time

that proved too difficult to place on a left-right scale. All other democracies in this study did have an established party system at the time that lend itself to the left-right split. The results of the closest available data by country, year, and left-right score are: Belgium (1900, +1.8); United Kingdom (1900, +4.1); Norway (1906, +29.6); Netherlands (1918, -9.7); Italy (1900, +7.6); Germany (1919, -12.2); Australia (1901, +51.0); France (1910, -4.1); Austria (1919, -20.0); Finland (1907, -4.4); Denmark (1918, +19.0); United States (1900, +6.1); Canada (1900, +4.2); New Zealand (1899, +24.0); Sweden (1911, +11.7); and Switzerland (1899, +6.1). An OLS regression of voter preferences in the period 1960-2003 on these historical data indicates that political preferences circa 1900 do not predict current political preferences. In fact, the correlation and regression coefficients are non-significant and virtually zero. This empirical test weakens a possible critique of the IV strategy that would involve ideological path dependency.

3.4.2 Variables

The median voter and electoral center of gravity serve as the dependent variables. The key explanatory variables that will be used successively are a dummy for coordinated market economy, and its more sophisticated proxies that are the coordination index and the cooperative institution index.

The regressions that follow include a battery of control variables that are not

economic institutions but that could play a role in shaping voting behaviour. As many studies have pointed to the importance of electoral institutions, a control variable is included for Electoral District Magnitude. This more refined measure improves on the often used but very crude dummy for majoritarianism versus proportional representation. While majoritarian systems will always have but one electoral district, to lump together the variety of district magnitudes in proportional representation is tantamount to oversimplification. In line with the literature on the subject, it is expected that more electoral district magnitudes will be associated with more leftist voter preferences.[1] Tertiary education represents the part of the population with tertiary attainment for age group 25-64.[2] Religiosity is the part of the population that identifies themselves as being a religious person. From a number of recent studies that observed the importance of religiosity in shaping policy preferences, it would be expected that higher levels of religiosity are associated with more rightist voter preferences [Benabou and Tirole, 2006; Huber and Stanig, N.d.; McCarty and Pontusson, 2009; Scheve and Stasavage, 2006].[3] The absolute size of the countries is accounted for by way of the logarithm of Population.[4] GDP per capita represents a measure to control for the cross-national differences in wealth.[5] The Gini coefficient controls for within

[1]Source: Carey and Hix [2011].
[2]Source: OECD Country Statistical Profiles.
[3]Source: the Association of Religion Data Archives.
[4]Source: OECD Statistics, Population and Vital Statistics.
[5]Source: Ameco, European Commission Economic and Financial Indicators.

country wealth disparities. The Meltzer-Richard model [Meltzer and Richard, 1981] would predict that societies with greater wealth disparities are likely to shape more leftist voter preferences in order to claim more redistribution. More recent studies, however, have found little empirical evidence to support the intuitively appealing Meltzer-Richard model [Barnes, 2007; Iversen and Soskice, 2006].[1] It has been argued that ethnic fractionalization acts as a catalyst against policy preferences that favour redistribution [Alesina and Glaeser, 2004; Luttmer, 2001]. Hence, it would be expected that higher levels of ethnic fractionalization imply more rightist voter preferences.[2] The proportion of the population that lives in rural areas is also controlled for.[3] A control variable is included for the level of economic openness tabulated as the sum of exports and imports as a percentage of GDP.[4] Finally, a two-year lagged dependent variable is introduced to account for dynamics in the panel data analysis [Bartels, 2008*a*; Beck and Katz, 1996].

Table 3.2 presents the instrumented cross-sectional regressions. It is important to emphasize the limitations of a cross-sectional analysis of a relatively small number of observations (the sample consists of between 15 and 18 countries). The consequence of a small sample size and low degrees of freedom is that the obtained

[1]Source: World Institute for Development Economics Research and the World Bank Development Indicators.

[2]Source: Fearon [2003].

[3]Source: OECD Country Statistical Profiles.

[4]Source: the Comparative Welfare States Data Set.

results are very sensitive to model specifications and should be treated with caution. Table 3.3 reports on the instrumented panel data models using time series random effects. A panel data model is only possible for the cooperative institution index (Hicks-Kenworthy) as it provides a time series and some variation, unlike the dummy variable for being a liberal/coordinated market economy or the coordination index. The choice of random effects over fixed effects is reflective of the research question that considers cross-national differences (not within country dynamics). Because the coordination index circa 1900 by Cusack, Torben and Soskice [2007] is time invariant it cannot serve as an instrumental variable in the panel data models. A 5-year lag of the cooperative institution index is used instead. A 5-year lag is not ideal but common in time series analysis and minimizes the loss of data points.

3.4.3 Results

The empirical results shown in Table 3.2 and Table 3.3 corroborate the key proposition of this paper: aggregated voter behaviour is endogenous to the accumulated institutions of the political economy. The regressions on all measures of variety in the economic institutions return significant and material coefficients. This is the case for the cross-sectional 2SLS models as well as the generalized 2SLS time series random effects models. The direction of the effects show that coordinated

Table 3.2: Cross-sectional data: two-stage least squares models

	Median Voter 1960-2003			Electoral Center of Gravity 1960-97		
Coordinated/Liberal Market Economy	-8.506*			-0.686***		
	(5.09)			(0.22)		
Coordination 1990s (Hall-Gingerich)		-17.690*			-1.136***	
		(10.88)			(0.39)	
Cooperation 1960-1989 (Hicks-Kenworthy)			-16.460*			-1.080***
			(9.19)			(0.23)
Controls:						
Electoral district magnitude	-0.051	-0.056	-0.066	-0.001	-0.002	-0.003**
	(0.05)	(0.06)	(0.05)	(0.002)	(0.002)	(0.001)
Tertiary education	-0.892***	-0.564*	-0.273	0.004	-0.009	0.009*
	(0.25)	(0.32)	(0.23)	(0.009)	(0.011)	(0.005)
Religiosity	22.78***	18.69**	17.81**	0.080	0.074	0.028
	(8.51)	(8.98)	(8.24)	(0.34)	(0.32)	(0.20)
Log Population	4.508**	3.125	2.161	0.235***	0.299***	0.243***
	(1.87)	(2.11)	(1.98)	(0.08)	(0.08)	(0.05)
GDP p.c.	1.969**	1.510	1.540*	0.094**	0.063	0.069**
	(0.89)	(0.97)	(0.89)	(0.04)	(0.04)	(0.03)
Gini	1.142**	0.528	0.452	-0.0036	0.0029	-0.0031
	(0.47)	(0.51)	(0.48)	(0.02)	(0.02)	(0.01)
Ethnic fractionalization	1.676	-5.70	-4.314	-0.343	-0.708	-0.656**
	(8.85)	(13.31)	(11.55)	(0.39)	(0.51)	(0.31)
Rural	-0.016	-0.014	-0.036	0.0065*	0.0079**	0.0066***
	(0.09)	(0.11)	(0.10)	(0.004)	(0.004)	(0.002)
Economic openess	0.074	0.066	0.058	0.012***	0.012***	0.011***
	(0.08)	(0.11)	(0.09)	(0.003)	(0.004)	(0.002)
Constant	-98.30***	-58.92	-54.8	-0.704	-0.61	-0.413
	(31.84)	(38.57)	(35.59)	(1.31)	(1.41)	(0.89)
Instrument:						
Coordination circa 1900 (Cusack, Iversen, & Soskice, 2007)						
Cragg-Donald Wald F-statistic	14.6	6.9	21.6	9.9	5.3	15.9
Observations	16	18	18	15	17	17
R-squared	0.76	0.54	0.62	0.73	0.62	0.85

Notes: Standard errors in parentheses. Hall & Soskice (2001) do not categorize France and Italy as either a CME or LME. Cusack (2002) does not provide electoral data on New Zealand. These statistical tabulations make use of the ivreg2 command in Stata. Control variables are averaged over 1960-2000.*** p<0.01, ** p<0.05, * p<0.1

Table 3.3: Panel data: instrumented random effects models

	Median Voter	Electoral Center of Gravity
Cooperation (Hicks-Kenworthy)	-4.586***	-0.038**
	(1.24)	(0.02)
Controls:		
Electoral district magnitude	-0.003	-0.0002
	(0.01)	(0.00)
Log Population	0.379	0.007*
	(0.31)	(0.004)
GDP p.c.	0.144***	0.001**
	(0.04)	(0.00)
Gini	-0.102**	-0.0004
	-0.047	(0.00)
Economic openess	-0.003	0.0003*
	(0.02)	(0.00)
Lagged dependent variable	0.746***	0.928***
	(0.03)	(0.02)
Constant	-0.481	0.153**
	(4.31)	(0.07)
Instrument:		
Cooperation 5-year lag		
Cragg-Donald Wald F-statistic	35.7	28.9
Observations	535	503
Number of groups	18	17
R-squared within	0.48	0.28
R-squared between	0.97	0.99
R-squared overall	0.71	0.93

Notes: Standard errors in parentheses. The time series for the Hicks-Kenworthy cooperative institution index does not extend beyond 1994. Previously used controls that were time-invariant or for which no time series could be obtained are not included. Because the coordination index circa 1900 by Cusack, Iversen, & Soskice (2007) is time invariant it could not be used as an instrumental variable. A 5-year lag of the cooperative institution index is used instead. *** p<0.01, ** p<0.05, * p<0.1

market economies, indicated by greater levels of strategic coordination and cooperative institutions, move the median voter or electoral center of gravity towards the left. Conversely, liberal market economies move the median voter or electoral center of gravity to the right on a standardized partisan spectrum.

No other variable returns consistently significant coefficients across all models. Still, it is worthwhile to touch briefly on a number of significant results. The coefficients on religiosity, when regressed on the median voter, turn out to be significant and important. This empirical support for a strong positive correlation between religiosity and rightist voter preferences aligns with the recent work by Benabou and Tirole [2006], Scheve and Stasavage [2006], and Huber and Stanig [N.d.]. These authors found that there are psychological, normative, and economic reasons for why higher levels of religiosity weaken the demand for redistributive policies. Needless to say that rightist governance is typically associated with less redistributive policies than leftist governance. GDP per capita comes in significantly except in the case of the Hall-Gingerich coordination index. That higher levels of wealth is positively correlated with rightist voter preferences would seem to conform to general intuition. This is also the case for the level of population that shows a positive correlation with the electoral center of gravity. Bigger countries imply less social proximity that, in turn, would weaken the interest in social policies. As noted earlier, there is scant empirical evidence for the theoretic model by Meltzer and Richard [1981] that would find that democra-

cies with higher levels of wealth inequality claim more redistribution. This study produces slightly mixed results for its measure of inequality: the Gini coefficient. Overall that would seem to lend support to the more recent findings that, in fact, societies with high levels of inequality do not necessarily mobilize its poorest to claim redistributive policies [Barnes, 2007; Iversen and Soskice, 2009]. Ethnic fractionalization, while suggested to be of importance by Luttmer [2001] and Alesina and Glaeser [2004], shows mixed results in this empirical study. While the electoral district magnitude variable shows the expected sign, that it does not come in significant may raise suspicion with the perceptive reader. The usage of a more sophisticated measure for electoral systems—by way of the electoral district magnitude—and the inclusion of economic institutions, as well as the use of instrumented two-stage regressions may have weakened the effect that recent research would have expected.

3.4.4 An illustration: the institutional and ideological transformation of the UK under Thatcher

Institutional path dependency is very strong in this sample of 18 countries. In fact, there is only one country that has undergone a quantum institutional shift. The transformation of the United Kingdom under Margaret Thatcher has no equal. Around the 1970s—prior to the Thatcher government that ruled from

1979 to 1990—the UK had the highest level of public sector employment in Europe [Knutsen, 2005]. The period that followed saw a sharp reduction in its public sector (described in Dunleavy [1991]) and also the most significant decline in union density in Europe: a staggering 42,5% drop from 1980 to 2000 [Kwon and Pontusson, 2008]. Following Hall [2007, p.63], "The Thatcher government is the exception that defines the limits ... It took on the trade unions and dramatically reduced their power. However, Thatcher did so from a position of considerable strength. Facing a divided opposition, she was electorally secure, and the British trade union movement was not only divided but weakened by high levels of unemployment." In effect, with Thatcher's leadership the UK became solidly classified as a liberal market economy [Hall and Soskice, 2001].

As this paper would suggest, the median voter or electoral center also underwent a shift. For the period of 1960-1980 the median voter averages at -10; a strong left partisan preference in line with the arguments on labour organization and government employment. The subsequent period 1981-2001 sees the UK median voter move to a slightly rightist position averaging at +1. Of course, this begs the question on what came first: Was there a singular ideological shift among the British voters that translated into these institutional changes, or did the direction in causality originate from the long-lasting leadership by the Iron Lady and the neo-liberal economic ideas that had captivated her Conservative governments at the time? The econometrics applied in the above analysis opt

for the latter sense of direction. The Thatcher era effectively turned around the original institutional advantages in the UK to now favor the political odds of the Conservative party. As a consequence, the Labour party had to re-invent itself into "New" Labour as led by Tony Blair and universally understood to have adopted a more liberal agenda than any other European social democratic party. Given the changed institutional landscape, New Labour chased the re-orientation of the median voter to being more rightist. While reneging on its blue-collar roots, Tony Blair's opportunistic leadership ensured the political survival of the Labour party.

3.5 Conclusion

From the data, it appears that the UK provides the only test case where the politically aligned set of institutions underwent a quantum change. All other countries in the sample have retained the institutional advantages to partisan politics that came along with the original development of institutions. The structure of their political economies generated political feedback effects that sustained distinctive trajectories. The logic that results from this analysis is that parties can shape voting behaviour by way of altering institutions. Equally, the institutions of the political economy influence the positions that parties take by way of shaping the

median voter over which parties compete.[1]

The results of this paper go against notions of all-pervasive ideologies that would be exogenous and at the origin of different voting behaviour. Instead, this paper aligns with the notion that "men are everywhere so alike" as the philosopher David Hume would have it; or *de gustibus non est disputandum* as Stigler and Becker [1977] titled their essay on the proposition that variation in market conditions explains differences in behaviour rather than innate variation in preferences. Similarly, this paper showed that variation in the institutional set-up of a political economy explains variation in voting behaviour. Hence, instead of relying on an ideological explanation for cross-national partisanship, this paper suggests that it is a process where individuals adapt their political preferences to their economic environment that leads to sustained cross-national differences in voting behaviour.

[1]If voter preferences are to some degree endogenous to their political economy, then all accounts taking voter preferences (or the left-right position of government) as exogenous are open to questioning. This sweeping critique of a large chunk of the literature is, of course, not novel. For example, Dunleavy [1991] made a strong swipe against taking voter preferences as exogenously fixed and unaffected by their participation in a variety of processes. Dunleavy, however, argues that voter preferences are to an extent endogenous to the exercise of state power by parties. Combining Dunleavy's insights—and those that have made similar arguments, e.g. Evans and Andersen [2005]; Sanders et al. [2008]—with the empirical results of this paper, one can make a strong case that voter preferences are being shaped from multiple angles and should not be considered as exogenously given.

Chapter 4

Ideological Change and the Economics of Voting Behaviour in the US, 1920-2008

Public-spiritedness is harder to inspire among people who feel they're losing ground.

—Robert Reich.

4.1 Introduction

Do long-term economic business cycles impact ideology and voting behaviour? Would a prospering economy push aggregate voter preferences towards more expansionary government and the liberal left; and does a contracting economy lead voters to favor smaller government and the conservative right? In short, is ideological change endogenous to variation in income growth rates?

Surprisingly few scholars have dealt with this important question head-on. Two reasons may possibly explain this lack of attention for what could well be a fundamental dynamic in political economy. First, the pioneering work by Campbell et al. [1960] and Lipset and Rokkan [1967] established models of voter preferences that are determined by partisan affiliation or class and religious cleavages in society. Later work augmented sociological sources with the ways in which electoral systems [Alesina and Glaeser, 2004; Iversen and Soskice, 2006] and economic institutions [De Neve, 2009*a*; Iversen and Soskice, 2009] shape interests, ideology, and voting behaviour. The result of these literatures, however, is a rather static vision of ideological change. For voter ideology to change we would need variation in sociological structures or electoral and economic institutions. Because these variables are either hard to quantify or slow-moving, there have been few attempts at better understanding ideological change.

Equally important may be that virtually all attention for the link between economics and voting behaviour has been monopolized by short-term analyses of how economic performance affects incumbency. Hence, from the outset, it is important to distinguish the empirical and modeling effort in this paper from the large literature denoted as "economic voting." What is known as the economic voting literature considers sociotropic and egocentric (or pocketbook) economic effects on incumbent government approval and election outcomes [Alesina, Roubini and Cohen, 1997; Duch and Stevenson, 2008; Kramer, 1971; Lewis-Beck,

1988; Lewis-Beck and Paldam, 2000]. This paper, however, studies how changing economic realities alter political ideology and voting behaviour over multiple elections regardless of incumbency. In doing so, it adds to a small number of prominent pieces that have also attempted to capture this fundamental dynamic in political economy. No previous attempt, however, has been able to cover as much ground, nor had access to the measure of voting behaviour presented here. Because swings in ideology happen slowly, the importance of having multi-generational time series cannot be overstated. This emphasis on long time series and ideology distinguishes this research effort from the typical study in economic voting that considers how economic conditions affect an incumbents chances for reelection. While the term economic voting is generic enough to also apply to this paper, it would have to be considered in a category distinct from the aforementioned accountability literature that has come to embody the notion of economic voting.

It is also worthwhile noting from the outset that this is not a theory about how rich or poor Americans vote. This work is preoccupied with how changing economic realities affect aggregate voting behaviour; this paper thus hopes to gain understanding into the drivers of ideological change across the US electorate. In his seminal piece "What moves policy sentiment?" Robert Durr [1993] was the first to squarely tackle this deviously simple question. According to Durr, shifts in US domestic policy sentiment on the liberal-conservative spectrum were

a response to changing economic expectations. With expectations of a strong economy producing greater support for liberal policies and declining economic conditions shifting the policy mood to the right. Durr's empirical analysis of US policy sentiment revealed the existence of such ideological undercurrents regardless of incumbency effects. In another prominent piece, Stevenson [2001] expanded on Durr's theory and conducted a comparative study of fourteen Western democracies to also find that changes in aggregate voter preferences relate systematically to national economic performance. In similar vein, Kim and Fording [2001], Markussen [2008], and Kayser [2007, 2009] explore the interaction between economic conditions and electoral choice in a comparative setting and also point to international economic sources of these seemingly domestic processes. Durr [1993], however, was both the first and the last to take a close empirical look at whether the ideology of the US public moves in sync with the domestic business cycle. His analysis covered the years 1968-88, a relatively short period of time to record what Durr himself described as a long-memoried, dynamic equilibrium between the economy and policy mood that moves in long waves through time. The dependent variable in Durr's analysis was the notion of "policy sentiment," a measure devised by Stimson [1991] that aggregates hundreds of distinct US public opinion surveys dealing with a multitude of different policy preferences. When pooled together, Durr and Stimson argued, it becomes possible to construct a single time series for the policy mood that gauges movement along a

liberal-conservative continuum.

This paper expands and tests the theory originally proposed by Durr and hopes to place the economics of voting behaviour at the heart of political economy. In the process, this work introduces a new time series to capture actual voting behaviour, formalizes an income growth model, and runs empirical tests that attempt to deal with the reverse causality of economic voting. The paper starts with a quick overview of ideological change and voting behaviour in the US since 1920 and introduces the median voter as our dependent variable. Next, a reference-dependent utility model is discussed and the relationship between income growth and voting behaviour is established. The logic and implications of this model are compared with the standard redistributive model of voter preferences. An empirical analysis that considers reverse causality is carried out for disposable income growth and the results of this research are discussed before the paper concludes.

4.2 Ideological change and voting behaviour in the US, 1920-2008

4.2.1 The median voter data set

In order to quantify ideological change and voting behaviour this paper turns to the concept of the median voter. Ever since the seminal works by Black [1948] and Downs [1957] established the concept of the median voter, or the ideological center of the electorate, it has figured widely across literatures. This paper introduces a new median voter data set that is detailed in a separate research note [De Neve, 2009*c*]. The data employs the statistics provided by the Comparative Manifesto Project[1] Budge et al. [2001]; Klingemann et al. [2006] but corrects for stochastic error as done by Benoit, Laver and Mikhaylov [2009].[2]

[1]The Comparative Manifesto Project (CMP) codified all sentences of every election manifesto to place parties on a left-right scale. The scaling consists in subtracting the sum of percentage references to categories grouped as left from the sum of percentage references to categories grouped as right. The manifesto data is collected such that each statement is assigned to either a pro-left or a pro-right category. Consequently, negative scores represent a generally left position, whereas positive scores are reflective of a right position. Results range between -100 (extreme left) and +100 (extreme right).

[2]Benoit, Laver and Mikhaylov [2009] detail the inherently stochastic processes of manifesto authorship and manifesto coding for which the CMP does not provide error estimates. The absence of estimates of measurement uncertainty in the CMP data is troublesome and lowers the scientific quality of its statistics as well as the research that builds upon it. Treating words as data with error, Benoit, Laver and Mikhaylov [2009] proceed by bootstrapping the analysis of every coded manifesto. By way of these simulations they reconstruct the stochastic processes that generated these political texts. In doing so they are able to estimate degrees of non-systematic error for the thousands of manifestos coded by the CMP. The use of these error estimates allows for better empirical and theoretical inferences from the CMP data. The bootstrapping work by Benoit et al (2009) also allows for generating new data estimates of party policy positions. The alternative estimate for a party policy position then becomes the mean estimator of the 1,000 bootstrap simulations that were drawn for each manifesto. This

In essence, the position of the median voter is computed from vote shares for the ideologically ranked parties; a methodology spearheaded by Kim and Fording [1998]. This is done by first ranking the parties by ideological score for every election through textual analysis of party documents. Then for each party the interval where its supporters are located is tabulated by locating the midpoints between the ideologically neighboring parties. Assuming that voters choose the candidate or party that is ideologically closest to them, a party will attract the votes of those that are part of the interval that surrounds that party. The assumption that voting behaviour is an expression of ideological beliefs is common [Coate and Conlin, 2004; Mullainathan and Washington, 2009]. Still, it is important to underscore that this assumption implies a disregard of the part of the electorate that may vote strategically rather than ideologically.[1] Finally, the electoral results for each party at every election are matched to produce the percentage of the electorate that is grouped into each ideological interval. As Kim and Fording [2003] point out, this methodology requires us "to conceive of elections as large-scale opinion polls." Where the ballot acts as a survey in which the subject chooses the party that is ideologically closest on the partisan left-right spectrum. As such, it is possible to treat election results as a grouped frequency distribution

new data for party policy positions calibrates for stochastic error in the CMP. De Neve [2009*c*] adopts these corrected party policy positions in order to construct a new median voter data set.

[1]Stevenson [2001] notes that estimates of the importance of strategic voting rarely attain 10%.

and tabulate a median statistic. The results range between -100 (extreme left) and +100 (extreme right) and non-election values are interpolated linearly.[1] De Neve [2009*c*] provides details on the precise tabulations and assumptions that were involved to build these new median voter statistics and extends the data to include over 50 democracies. It is important to highlight that the median voter statistics are derived indirectly via party policy positions and their success at the election polls, rather than direct evidence of voter opinions. Notwithstanding these limitations, the median voter data presented here are unique in their range and detail. Moreover, as compared to self-placement surveys, this methodology ties in actual voting behaviour which leaves opinion polling data more appropriately coined as "median citizen" instead of "median voter".

The methodology to construct these median voter statistics underwent robustness checks carried out by, among others, Powell [2000] and McDonald and Budge [2005]. Table 4.1 compares the US median voter data used in this paper with alternative measures from the American National Elections Studies (ANES), Kim and Fording [2003], and Ellis and Stimson [2009]. Table 4.2 presents correlation coefficients between these measures. The Kim and Fording [2003] measure for the US median voter also builds on the CMP statistics but does not correct

[1]Interpolating values for the in-between election years is far from ideal. Still, it is not unreasonable to assume that ideological sentiment moves gradually between elections rather than in a haphazard fashion. The appendix also provides the empirical analysis using the median voter data without interpolating non-election values. The empirical claims of this paper remain equally significant.

for stochastic error and applies a ratio method instead of a subtractive method to tabulate party positions. The ANES measure of party identification is a bi-annual survey that gauges whether respondents think of themselves as Democrat, Independent, or Republican on a 7-point scale. The ANES liberal/conservative measure is a bi-annual survey that gauges whether respondents think of themselves as liberal, moderate, or conservative on a 7-point scale. The Ellis and Stimson [2009] measure is a compiled and integrated time series of historical and more recent self-identification surveys on whether respondents think of themselves as liberal or conservative.

Table 4.1: Comparison with alternative voter ideology measures

Name	Availability	N	Range	Mean	SD	Min	Max
US Median Voter De Neve [2009*c*]	1920-2008	89	-100/100	8.2	6.6	-7.8	20.9
US Median Voter Kim and Fording [2003]	1945-2003	59	0/100	48.9	9.5	35.5	66.1
Party identification (ANES)	1952-2008	28	1/7	3.6	0.2	3.3	4.0
Lib/Cons identification (ANES)	1972-2008	18	1/7	4.3	0.1	4.1	4.5
Lib/Cons identification Ellis and Stimson [2009]	1937-2006	70	0/100	39.3	4.2	31.8	46.3

Of course, in order to measure ideological change in the US one could simply take the variation in electoral success between Democrat and Republican candidates over time. To do so, however, would be a mistake as it would falsely assume

Table 4.2: Alternative voter ideology measures correlations table

Name	(1)	(2)	(3)	(4)	(5)
(1) *US Median Voter* De Neve [2009*c*]	1.00				
(2) *US Median Voter* Kim and Fording [2003]	0.60	1.00			
(3) *Party identification* (ANES)	0.77	0.66	1.00		
(4) *Lib/Cons identification* (ANES)	0.08	0.40	0.49	1.00	
(5) *Lib/Cons ID* Ellis and Stimson [2009]	0.51	0.74	0.56	0.61	1.00

Note: To facilitate interpretation, the Kim and Fording [2003] and Ellis and Stimson [2009] measures were inversed to obtain data that would also increase when indicating a rise in conservatism.

that the ideological position of either party has not altered over time. Combining electoral success with an in-depth analysis of party documents since 1920 allows for a sophisticated measure of voting behaviour and ideological change that incorporates voter and party dynamics.

4.2.2 The United States, 1920-2008

For the United States only, the election documents going back as far as 1920 have been coded. Moreover, a special effort was made to code the most recent 2008 election documents.[1] The result is a unique view of the evolution of voting behaviour in the United States as shown in Figure 4.1. The ANES party self-identification measure is added on from when it became available (1952), as well as a polynomial trend line to show the general trend in voting behaviour between

[1]Ian Budge (University of Essex) and Judith Bara (QMUL) are to be thanked for their efforts and approval of early release.

1920 and 2008 in the US.

In line with conventional wisdom it shows the US to be generally rightist or conservative. The one time that the US public enters leftist territory is between 1945-50 when, in the wake of the Roosevelt years, Truman finds fertile ground to introduce the Fair Deal that implements a large number of social and economic reforms; including the Housing Act of 1949, an expansion of social security, as well as the first call for universal healthcare. On the international front this less conservative period shows in the large economic aid programs as symbolized by the Marshall Plan. Soon thereafter, however, the US gradually returns to being increasingly more conservative with support for Eisenhower, Nixon, Reagan, and Bush Sr. The elections of Kennedy, Johnson, and Carter do not indicate a turning of the ideological tide though the Kennedy to Johnson and Carter years show a softening conservatism. The mid-eighties see another quantum leap in the conservatism of the American public and culminates with the electoral victory of Bill Clinton who rode the conservative wave on a platform that heralded "the era of big government is over" and promoted fiscal conservatism. The conservativeness of the US electorate drops slightly throughout the second term of the Clinton years and the 2000 election of Bush Jr. However, towards the 2004 re-election of Bush Jr., we note an upswing in conservatism that gradually peels off when we head for the Obama presidency.

What drives these changes in voter sentiment? In his influential contribution,

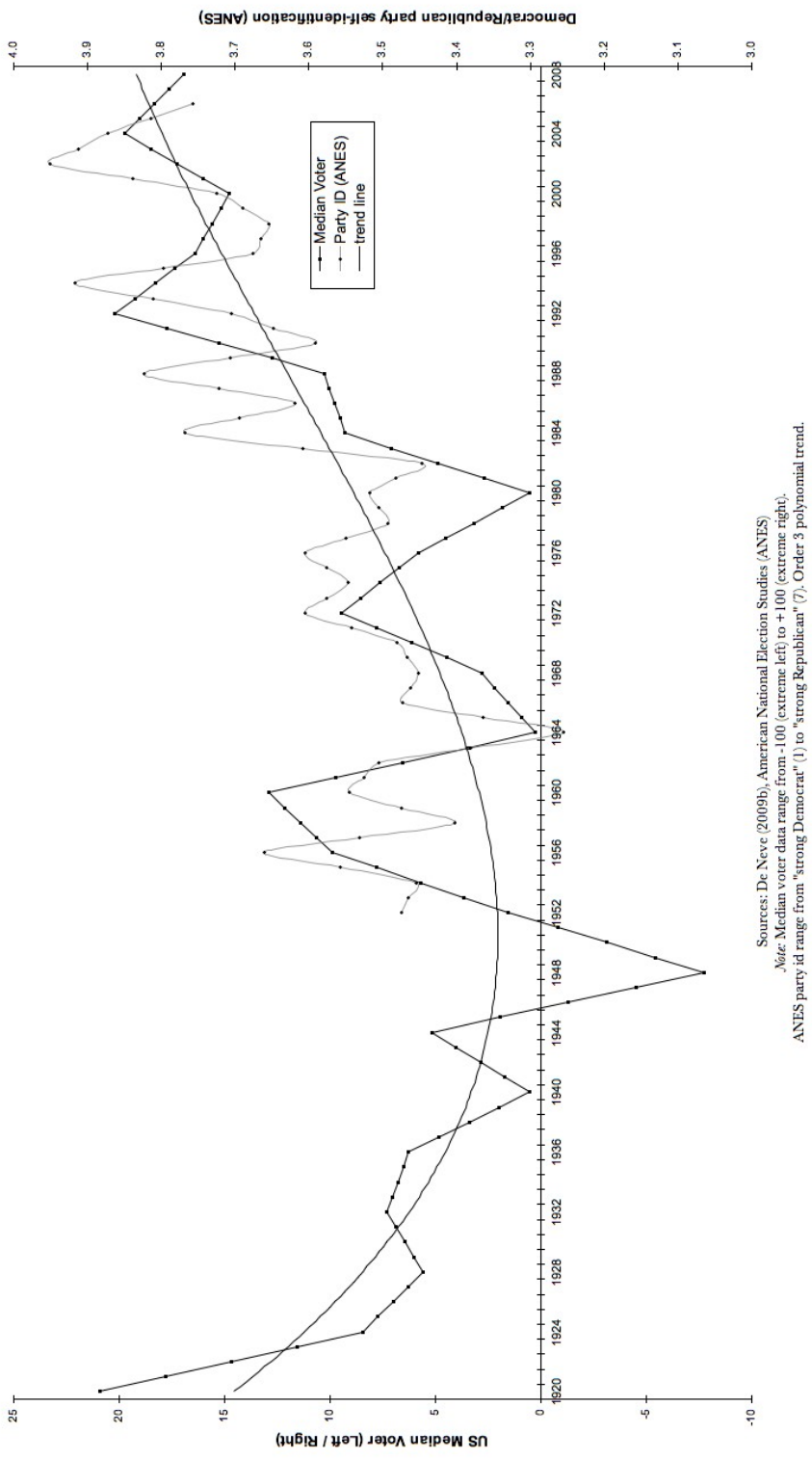


Figure 4.1: The US Median Voter, 1920-2008

Durr [1993] argued that these broad shifts in ideological sentiment represent responses to changing economic conditions. Before testing this logic empirically, we describe a utility-based model that establishes a relationship between income growth and voting behaviour by way of the demand for public goods and the optimal tax rate.

4.3 The economics of voting behaviour

4.3.1 An income growth model

The logic of the model presented here can be traced back as far as Wicksell [1896] who also considered individuals that allocate their resources between private goods and public goods. The allocation or substitution mechanism for these competing supplies of goods is the rate of taxation and the democratic process allows for a decision. As such, the resulting rate of taxation is chosen by the decisive or median voter who maximizes utility derived from private and public goods given an income constraint. This voter utility model is similar to the textbook model in consumer choice with an individual deriving utility from a convex combination of two bundles of goods subject to a budget constraint that is their personal income. In this voter utility model there are the private goods procured by disposable (post-tax) private income, and there are public goods procured by tax revenue. Public goods are understood in the largest possible sense as

comprising all public goods and services provided by government including education, social security, healthcare, utilities, parks, policing, and national defense. This view of public goods is purposely larger than the definition employed by, for example, Meltzer and Richard [1981] who limit government to a redistributive function only.

Given varying marginal utility, individuals will alter their preferred mix of private and public goods to maximize utility with changes in income. This logic was first applied to policy sentiment by Durr [1993] and formalized by Kayser [2009]. Both authors assumed diminishing marginal utility on income and linear marginal utility on public goods. This paper extends variation in policy sentiment to behaviour at the voting booth and relaxes the assumption of linear marginal utility on public goods in proposition 2. As the preferred mix of private and public goods changes so does the optimal tax rate that allows for substitution between private and public goods. The way to express preferences on the supply of public goods and the tax rate is to vote for a candidate or party program that would advance those preferences. If the median voter perceives leftist parties as being associated with expansionary government, then a prospering economy with rising income growth will proportionally increase the demand for public goods which translates into more electoral support for the liberal left. Conversely, if the median voter associates parties of the right with lower taxation and smaller government, then a dismal economy that depresses income growth rates will make

voters less willing to sponsor public goods and generate more electoral support for the conservative right. It is commonplace to associate leftist parties with higher taxation and expansionary government and parties of the right with lower taxation and smaller government [Downs, 1957; Hibbs, 1987; Huber and Inglehart, 1995; Iversen and Soskice, 2006].[1]

In order to formalize a voter preferences model that considers income growth, not levels of income, this paper taps into the literature on reference-dependent utility models that derive utility gains and losses from standard consumption utility models with reference points determined endogenously [Koszegi and Rabin, 2006, 2009]. The intuition behind reference-dependent models originates in the work of Kahneman and Tversky [1979] who show that the outcome of a choice is not only shaped by absolute values but also by comparison with a reference point. An economic reference point that voters will have come to expect is the income growth rate of the previous year. Standard economic voting models typically equate the reference point with the status quo level of income. However, following Koszegi and Rabin [2006] "when expectations and the status quo are different—a common situation in economic environments—equating the reference point with expectations generally makes better predictions."

[1] A different, and perhaps more intuitive way of relating the logic of this income growth model would be to suggest that in good economic times it is less painful having to part income for the collection of taxes and the provision of public goods. Dire economic times, however, make it particularly painful to pay taxes and will make a campaign promise to reduce taxes all the more appealing.

We can represent a simple reference-dependent voter utility model as the sum of the utility gains or losses on disposable personal income growth and tax revenue growth.[1] Formally, with linear utility on public goods,

$$U_v \;=\; [(1-\tau)\,\Delta y]^{\alpha} + \tau\,\Delta y\,(1-\delta) \;\mid\; \alpha, \delta, \tau < 1$$

where the first term captures the utility gains from income growth (Δy) after taxes (τ) or disposable personal income growth with which to procure private goods. The second term represents the utility gains derived from public goods that are financed by tax revenue. A parameter to capture the inefficiency of taxation is included $(1-\delta)$. Income growth is subject to diminishing marginal utility, hence the first term is raised to a fractional exponent (α).[2] Solving the first-order condition for the optimal level of taxation (τ^*) gives the below proposition with proof in appendix.

Proposition 1. *With linear marginal utility of public goods, the optimal level of taxation increases with rising income growth as given by*

$$\tau^* = 1 - \frac{\alpha^{\,\alpha-1}(1-\delta)^{\frac{1}{\alpha-1}}}{\Delta y}$$

[1] Of course, the absolute level of personal income will play its role in generating utility to voters. The research presented in this paper, however, is pre-occupied with the explanatory power of income growth rates rather than absolute income levels. Comparable work in political economy typically looks at growth rates when considering personal income, GDP, unemployment, or inflation, instead of absolute levels of those macroeconomic indicators.

[2] This voter utility model is different from the modeling effort by Kayser [2009] in that it dispenses with the arbitrary weighting parameter on public goods and, perhaps more importantly, it is expressed in terms of income growth by relying on the logic of reference-dependent utility models.

When income growth Δy rises, the optimal level of taxation τ^* also rises. This optimization result on taxation nicely illustrates the above logic and provides a dynamic link for the relationship between changing economic conditions and policy sentiment that Durr [1993] first described.

When we release the assumption of linear marginal utility on public goods and raise the second term to a fractional exponent (ε) we obtain the following voter utility model[1]

$$U_v \;=\; [(1-\tau)\,\Delta y]^{\alpha} + [\tau\,\Delta y\,(1-\delta)]^{\varepsilon} \;\mid\; \delta, \tau, \alpha, \varepsilon < 1$$

Solving the first-order condition for the optimal level of taxation (τ^*) and the implicit derivative ($\frac{d\tau}{dy}$) gives the following proposition with proof in appendix.

Proposition 2. *If the marginal utility of public goods is sufficiently greater than the marginal utility of disposable income growth ($\varepsilon > \alpha$) then the optimal level of taxation increases with rising income growth as given by*

$$\frac{\frac{\alpha^2}{\varepsilon^2(1-\delta)^{\varepsilon}}\Delta y^{\frac{\alpha}{\varepsilon}-1}}{\{(1-\alpha)\,\tau-(1-\varepsilon)\,(1-\tau)\}\,\frac{\tau^{\varepsilon-2}(1-\tau)^{\alpha-2}}{\left[(1-\tau)^{\alpha-1}\right]^2}}$$

The sign on $\frac{d\tau}{d\Delta y}$ depends on the term $\{(1-\alpha)\,\tau-(1-\varepsilon)\,(1-\tau)\}$, hence

[1]This voter utility model is different from the modeling effort by Kayser [2009] in that it allows for an exponential utility function on both income growth and public goods. This model also dispenses with the arbitrary weighting parameter on public goods and is expressed in terms of income growth.

$$\begin{aligned} \frac{d\tau}{d\Delta y} &> 0 \Leftrightarrow (1-\alpha)\,\tau - (1-\varepsilon)\,(1-\tau) > 0 \\ \overset{\alpha<1,\varepsilon<1}{\Leftrightarrow} \frac{(1-\alpha)}{(1-\varepsilon)}\frac{\tau}{(1-\tau)} &> 1 \end{aligned}$$

For this condition to hold it is sufficient that $\varepsilon > \alpha$ as long as $\tau > 1/2$. As τ decreases, the ratio ε/α needs to increase for $\frac{d\tau}{d\Delta y}$ to remain positive. The case where marginal utility of public goods (ε) is greater than the marginal utility of disposable income growth (α) would be common. First, because personal income precedes the possibility of financing public goods, those public goods will be at an earlier stage on their utility function relative to income. Second, demand for public goods and services has been shown to be income elastic, a regularity known as Wagner's Law [Lamartina and Zaghini, 2008].[1]

4.3.2 Income growth, taxation, and voting behaviour

Figure 4.2 plots the key variables of this voter utility model over time. Variable definitions and sources are available in the appendix. Disposable income growth

[1] Alternatively, as Stevenson [2001] observes, a slightly different logic from the above would lead to the same conclusion. If voters perceive leftist policies as luxury goods relative to rightist policies, then an individual will maximize her utility by advancing leftist policies when her personal income rises and rightist policies when income decreases. This logic circumvents the assumption that leftist parties and their policies have to be perceived as generating more expensive public goods as compared to rightist policies. An assumption that could be empirically problematic given that spending priorities by conservative governments have, at times, led to greater levels of public spending than liberal governments [Galbraith, 2008].

and the tax rate track each other well, as hypothesized in the above model. A continued rise in income growth rates through the early 1980s is accompanied by a similar rise in the median tax rate. This trend reverses sharply after 1985 with income growth values and the tax rate either dropping or leveling. As income growth contracts, the median voter experiences increased marginal utility from personal income, whereas taxation will be perceived as evermore painful, thus the median voter is likely to become less supportive of taxation and public spending. Following the above logic, this model leads us to expect that the ideological center of the US electorate will have shifted rightward from the mid-eighties onwards as income growth depresses.

Adding the median voter data visualizes the principal claim of this paper; that ideological change is endogenous to variation in income growth rates. As Figure 4.2 and the polynomial trend lines show, the ideological center of the electorate joins income growth rates in a long-run trend. While income growth rates increase the electorate becomes more liberal, or to put it more appropriately in the case of the US, the electorate votes less conservative. Conversely, when income growth rates stagnate or contract, voting behaviour turns more conservative.

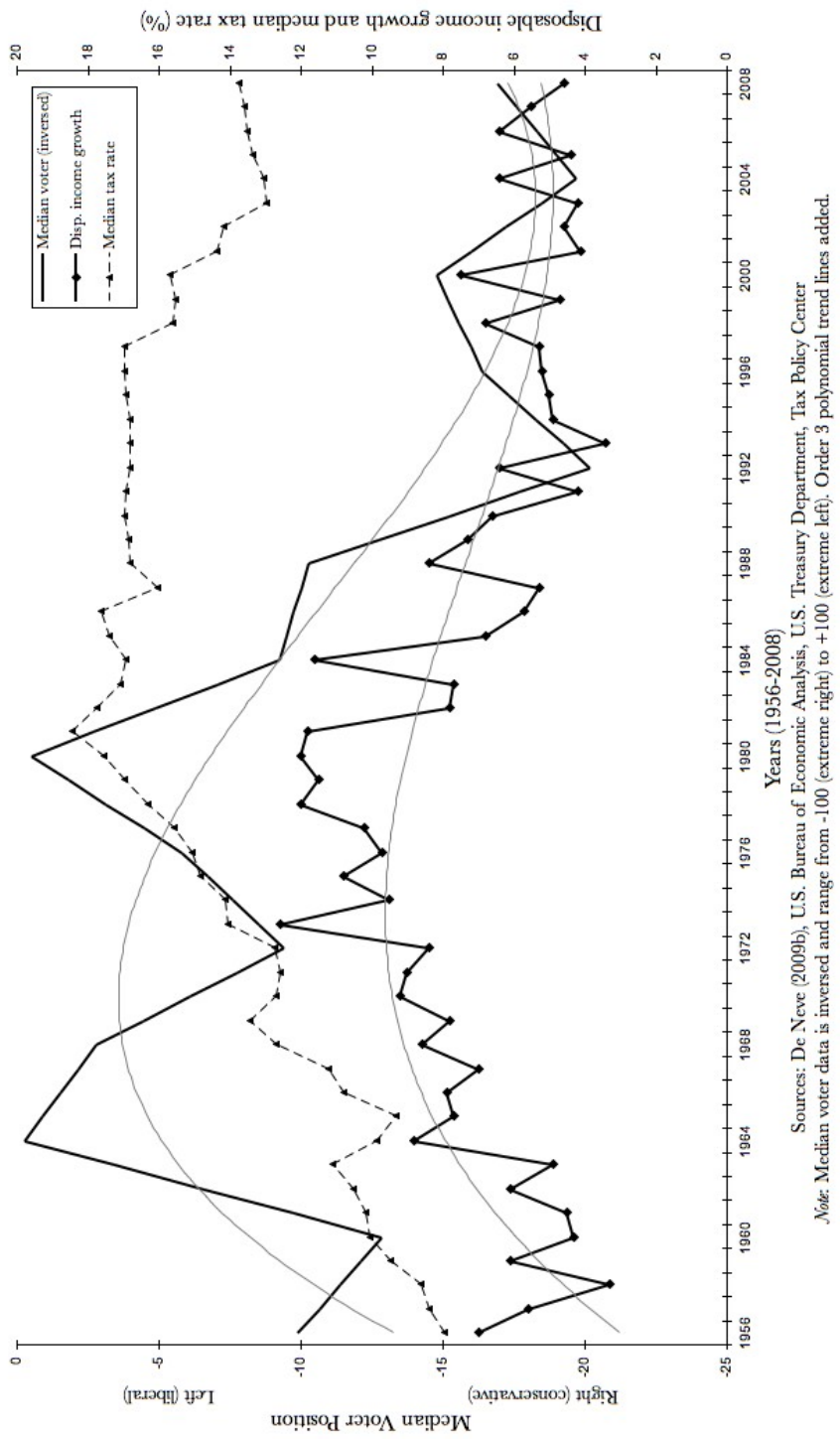


Figure 4.2: The Economics of Voting behaviour: Income Growth, Taxation, and Voting behaviour

4.3.3 The income growth model and the redistributive model

It is worthwhile observing that the above voter model is a departure from influential work developed by Romer [1975] and Meltzer and Richard [1981], and applied by, for example, Alesina and Rodrik [1994] and McCarty, Poole and Rosenthal [2006]. In essence, they model taxation and public spending as the result of redistributive demands by below median income voters. As Pontusson and Rueda [forthcoming] also observe, virtually all of the voter models in political economy have taken the redistributive model as a point of departure.

The redistributive model and the income growth model developed here rely on three similar assumptions. First, both models imply a two-step mechanism where an individual first has to part with money at tax time before being returned funds through redistributive processes or reap the benefit from public goods. Preferences over the desired level of taxation are evaluated at each election in function of where the voter's income ranks in society or in function of the voter's income growth and related change in the demand for public goods. Second, both models require that voters perceive the level of taxation to be positively correlated with levels of redistribution and provision of public goods. Finally, the redistributive and income growth models assume that voters mainly care about their socio-economic situation. If other issues, such as religion, are meaningfully

salient to voters it will disturb the logic of these uni-dimensional models [Roemer, 1998].

While both models rely on similar assumptions, there are important differences and these may result in opposing effects on political preferences and optimal taxation. First, as mentioned before, for the income growth model the function of the state is defined as providing public goods and services with the tax revenue it collects. These are understood in the broadest possible sense. The redistributive voter model limits government to a redistributive function and voter's minds are pre-occupied with calculating whether they will be a net contributor or recipient at the end of the redistributive process. As such, in the most basic version of the redistributive model, below median-income voters would have an incentive to support 100% taxation whereas the above median-income voter would prefer no taxation. Second, the suggested effect of income growth on voter preferences holds across the electorate. Broad-based income growth will have a population-wide effect on the demand for public goods and, hence, political preferences. The redistributive model does not suggest a universal effect across the voting population but splits the electorate into opposing camps with half that favors taxation and the other half that does not.

Of course, a comparison between the redistributive model and the income growth model developed in this paper is not ideal in that the latter is reference-dependent and thus dynamic, whereas the redistributive model is essentially

static. Still, a dynamic read of the redistributive model implies, in the words of McCarty, Poole and Rosenthal [2006], that "[I]n a responsive democracy, more inequality should typically lead to more redistribution." In terms of ideological change this would mean that increasing inequality moves the median voter further left in order to drive support for higher levels of taxation and redistributive spending. The logic of the income growth model presented in this paper implies the opposite conclusion: a leftist policy agenda will be most successful when rising income growth is equally spread. Income growth that is limited to the few is projected to have less impact on the demand for public goods and resulting voting behaviour.[1]

Notwithstanding a dramatic rise in inequality in the US over the past three decades, the US voting public has become more conservative by any ideological measure. The redistributive model failed to predict this conservative trend in voting behaviour. Many scholars set out to explain this empirical conundrum, coined the "paradox of redistribution" or "Robin Hood paradox," by pointing to non-economic policy issues [Roemer, 1998], beliefs on social mobility and fairness [Alesina and La Ferrara, 2005; Alesina and Angeletos, 2006; Benabou and Ok,

[1]It is left to future research to extend this analysis cross-nationally and evaluate whether different levels of inequality moderate the effect of income growth on voting behaviour. A preliminary conjecture would be that *ceteris paribus* societies with less inequality will have seen a steeper rise in leftist voting as income growth accelerated through the eighties and a sharper conservative turn as income growth decelerated from the mid-eighties onwards. The opposite logic is suggested for societies with high levels of inequality where income growth is less widespread and will thus generate a softened effect on voting behaviour.

2001; Benabou and Tirole, 2006; Piketty, 1995], group loyalties and social identity [Klor and Shayo, 2010; Luttmer, 2001], or political pressures from the top outweighing pressure for redistribution from the bottom as low-income citizens are less likely to vote or are not entitled to vote [Barnes, 2007; McCarty, Poole and Rosenthal, 2006; Pontusson and Rueda, forthcoming]. A number of scholars offered alternative models to explain pressures for redistribution and partisanship by focussing in on electoral systems, coalitions, and organized labor [Bradley et al., 2003; Iversen and Soskice, 2006, 2009]. Others reasoned that demand for insurance rises with income [Moene and Wallerstein, 2003], and still others state that "our goal is to rescue the idea that income inequality is not only shaped by politics, but also shapes politics"[Pontusson and Rueda, forthcoming].

The below empirical analysis gauges the influence of income growth rates on voting behaviour and includes an updated measure of inequality by Piketty and Saez [2003]. Contrary to the intuitive logic of the redistributive model, the results indicate that public spending does *not* "result from the difference between the distribution of votes and the distribution of income" [Meltzer and Richard, 1981]. On the other hand, variation in income growth rates does provide explanatory power for the demand for public spending and voting behaviour in the US.[1]

[1]It is important to note that the income growth and redistributive models are not mutually exclusive. In fact, their logic may well be complementary and the cognitive processes operating simultaneously in the minds of voters. There is, of course, a strong negative utility associated with having to part with personal income at tax time. But the pain caused by taxation may be mitigated if times are more prosperous then before and also if one realizes that he or she may end up being a net benefactor of the redistributive system. The joint or net effect of these

4.4 Empirical analysis

4.4.1 Reverse causality

Very little research on economic voting has attempted to deal with the possibility that voting may also impact economics. Wlezien, Franklin and Twiggs [1997] first raised the endogeneity issue and showed that the estimated effects of economic perceptions on vote choice were substantially less than originally produced in the widely cited work by Lewis-Beck [1988]. If voting behaviour influences the economic variables then using OLS estimations will inflate the economic effect on voter ideology. A case in point would be recent work by Bartels [2009] that shows significant economic effects on income growth and inequality when either a Democrat or Republican government is in power. Benign neglect of this reverse causality may have increased our understanding of how economic realities affect voting behaviour but statistical analyses may be biased. Not unlike the proverbial chicken and egg problem, is there a serious risk to attribute ideological change to variation in economic performance if, in fact, ideological change and the resulting voting behaviour may have influenced economic performance in the first place.

The use of one or more valid instrumental variables in a two-stage least squares (2SLS) regression allows for the estimation of causal relationships in the presence

processes may be key in shaping the vote decision of an individual. It is left to future research to develop these ideas more formally and test them empirically.

of endogenous explanatory variables. The instrument cannot be correlated with the dependent variable (exclusion) but should be highly correlated with the endogenous explanatory variable for which it instruments (relevance). If so, than a 2SLS regression allows for consistent estimation [Acemoglu, Johnson and Robinson, 2001; Heckman, 2008]. This paper proposes to use net income growth per head in the OECD (minus the US) as instrument for the variation in US disposable income growth. With increasing economic interdependence, a great number of scholars have established that domestic economic performance moves in sync with international economic fluctuations, or that international business cycles may actually induce covariation across domestic business cycles [Campbell and Mankiw, 1989; Kose, Otrok and Whiteman, 2003]. Hence, it is expected that net income growth rates for the OECD will be strongly correlated with income growth in the US. Kayser [2009] takes this logic one step further and shows that international business cycles influence domestic economic performance which, in turn, induces domestic electoral choice. As such, Kayser concludes that the cross-national success of left and right parties over time is best characterized by "partisan waves" that originate from international economic sources.[1]

The validity of the 2SLS results relies on the assumption that international business cycles have an *indirect* effect on US voting behaviour by way of US do-

[1]Quite a number of OECD member states do not have time series on net income growth that predates 1970. The 2SLS analysis thus has a lower limit at 1970.

mestic business cycles. A screening of the first-stage results of the 2SLS models shows that economic indicators for the OECD (minus the US) are relevant instruments for their US domestic counterparts. In fact, net income growth per head in the OECD (minus the US) correlates at 0.88 with US disposable income growth figures, and the first-stage regression coefficients on OECD income growth, and their first differences, obtain p-values inferior to 0.01. The instrumented analysis produces an F-statistic of 5.33 [Stock and Yogo, 2005].

4.4.2 Empirical model

Having seen in Figure 4.2 that ideological change and disposable income growth appear to move in sync over time, we can now turn to a statistical analysis that considers reverse causality and controls for other possible determinants of voting behaviour.

Augmented Dickey-Fuller unit-root tests suggest the presence of non-stationary or integrated variables. In similar fashion to Durr [1993] and Kayser [2009], we turn to a general error correction model (ECM) as the most appropriate way to proceed. Practically, the ECM is given by:[1]

[1]Theoretically, the ECM is given by:

$$\Delta Y_t = \alpha + \beta \Delta X_t + \delta(Y_{t-1} - X_{t-1}\gamma) + \epsilon_t$$

where the error correction term measures the distance from equilibrium that variables move following changes and the time it takes to return to equilibrium. For more info on the ECM please refer to DeBoef and Keele [2008].

$$\Delta Y_t = \alpha + \beta_1 Y_{t-1} + \beta_2 \Delta X_t + \beta_3 X_{t-1} + \beta_4 \Delta Z_t + \epsilon_t$$

where ΔY_t is the dependent variable, ideological change in the position of the US median voter, in year t. ΔY_t is regressed on its lagged level Y_{t-1}. ΔY_t is also regressed on both the first difference and the lagged level of the co-integrated independent variable X_t, in this case US disposable personal income growth rates. A one year lag for income growth rates is used and a 4-year lag of the median voter is used to capture dynamics that span another election. Z_t are additional controls, here a measure for inequality[1] and US defense spending as a percentage of GDP[2]. The appendix reproduces the analysis using additional controls for inflation, voter turnout, and presidential approval rates. Variable definitions and sources are also listed in the appendix.

4.4.3 Results

Table 4.3 shows the results of ordinary and instrumented error correction models that test the hypothesis that variation in personal income growth predicts ideo-

[1] A measure for inequality by Piketty and Saez [2003] is included to control for its possible influence on voting behaviour as suggested by, among others, Meltzer and Richard [1981] and more recently by McCarty, Poole and Rosenthal [2006]. The latter authors also show that inequality and the polarization of the US electorate are tightly correlated (r = 0.93), hence including inequality as a control also serves the purpose of covering the political polarization of the US public.

[2] US defense spending as a percentage of GDP is included to capture non-economic factors that may influence ideological change. Durr [1993] used dummies for the Vietnam War, Watergate, Iran hostage crisis, and Iran-Contra affair. Kayser [2009] used troop levels in Europe as a control in his cross-national study.

Table 4.3: Ordinary and 2SLS error correction models on ideological change in the US (1950-2008).

	Δ*Median voter OLS*			Δ*Median voter 2SLS*		
	Coefficient	SE	P-value	Coefficient	SE	P-value
$\Delta IncomeGrowth$	-0.22	0.09	0.017	-0.42	0.18	0.020
$IncomeGrowth_{t-1}$	-0.28	0.11	0.013	-0.36	0.16	0.024
$Medianvoter_{t-4}$	-0.32	0.04	0.000	-0.34	0.10	0.001
$Defensespending$	-0.31	0.12	0.012	-0.51	0.44	0.245
$Inequality$	0.12	0.06	0.047	0.09	0.08	0.262
Intercept	2.39	3.43	0.489	5.38	5.53	0.330
N	58			36		
R-squared	0.57			0.33		
F statistic				5.33		

Note: Variable definitions are in the appendix. The 2SLS instruments are the first differences and a one-year lag of disposable income growth rates in the OECD countries minus the US (1970-2008). Regression coefficients with standard errors (SE) and P-values are presented.

logical change. Both the OLS and 2SLS models show that increases in disposable personal income growth rates are significantly associated with more leftist or liberal voting behaviour in the US. This is the case for the one-year lagged income growth rates (OLS $p = 0.013$ and 2SLS $p = 0.024$), as well as for the first differences that capture short-run effects (OLS $p = 0.017$ and 2SLS $p = 0.020$). These results provide strong support for the logic behind the income growth model: an increase in personal income growth rates generates a relative increase in the demand for public goods and liberal policies, resulting in a leftward shift of the US median voter.

Also of interest is that the measure for inequality and defense spending as a percentage of US GDP come in significant, though both variables loose their

significance once we control for reverse causality in the 2SLS model. Note that inequality is positively associated with conservative changes in the position of the US median voter, contrary to the intuitive logic of the Meltzer-Richard model. The 4-year lagged median voter position is negatively associated with current ideological change which would appear to indicate a tendency to somewhat revert ideological course at every new election.

Additional statistical analyses reproduced in the appendix include controls for inflation, voter turnout, and presidential approval rates, as well as median voter data that is not interpolated. The results reported above are robust to these adaptations of the error correction model and coefficients on income growth variables remain significant.[1]

4.4.4 Fitting predicted model values: a retrospective

Figure 4.3 plots the predicted values from the OLS error correction model on actual data for US ideological change as measured by the annual change in the

[1] A unique feature of this paper is that it considers personal income growth statistics instead of the usual macroeconomic suspects that are GDP growth, unemployment, and inflation rates. Income is an obvious fit given that the income growth model presented above hinges on the utility of personal income and the willingness to fund public goods. Still, the few other papers that have elaborated on this logic considered either the usual economic indicators [Kayser, 2009; Markussen, 2008; Stevenson, 2001]. In appendix, Table 4.7 presents the results of ordinary and 2SLS error correction models analogous to Table 4.3 with GDP growth, unemployment, and inflation as explanatory variables. In line with personal income growth rates, the GDP growth variables are also negatively associated with $\Delta MedianVoter$ and the lagged GDP growth rate ($GDPgrowth_{t-1}$) is statistically significant. This indicates, once again, that good economic times go hand-in-hand with leftward ideological shifts. This result on GDP growth is verified when introducing the respective OECD data instrumental variables though the low R-squared and F-statistic cast doubt over the validity of this result.

ideological position of the US median voter. On the basis of 4-year old electoral data and up-to-date information on disposable income, defense spending, and inequality, this model tracks ideological change in the US fairly well.[1]

4.5 Conclusion

The US median voter tends to advance a more liberal policy agenda when economic times are good and turns more conservative when the economic situation deteriorates. Error correction models of disposable income growth show it to be a strong predictor of ideological change even after controlling for other possible sources of voting behaviour ($Defensespending$, $Inequality$, $VoterTurnout$, $PresidentApproval$) and reverse causality.

That income growth influences voting behaviour can be easily understood if one considers a reference-dependent utility model that is similar in set-up as the standard consumer choice model with competing goods. Given diminishing marginal utility on income growth, individuals will alter their preferred mix of private and public goods to maximize utility with changes in income. If the

[1] A model built on historical data provides no guarantee for future accuracy. Still, it is an entertaining exercise to contemplate the direction our model would suggest for ideological change in the near future. With a deep recession, high unemployment, and slow economic recovery at hand this model would predict the American electorate to have become more conservative, skeptical of public spending, and less inclined to advance public goods such as pro-environment regulation. Hence, unless the Democratic Party or candidate adopts a more rightward policy agenda, we would expect the Republican candidate to pick up more votes in 2012 as compared to 2008.

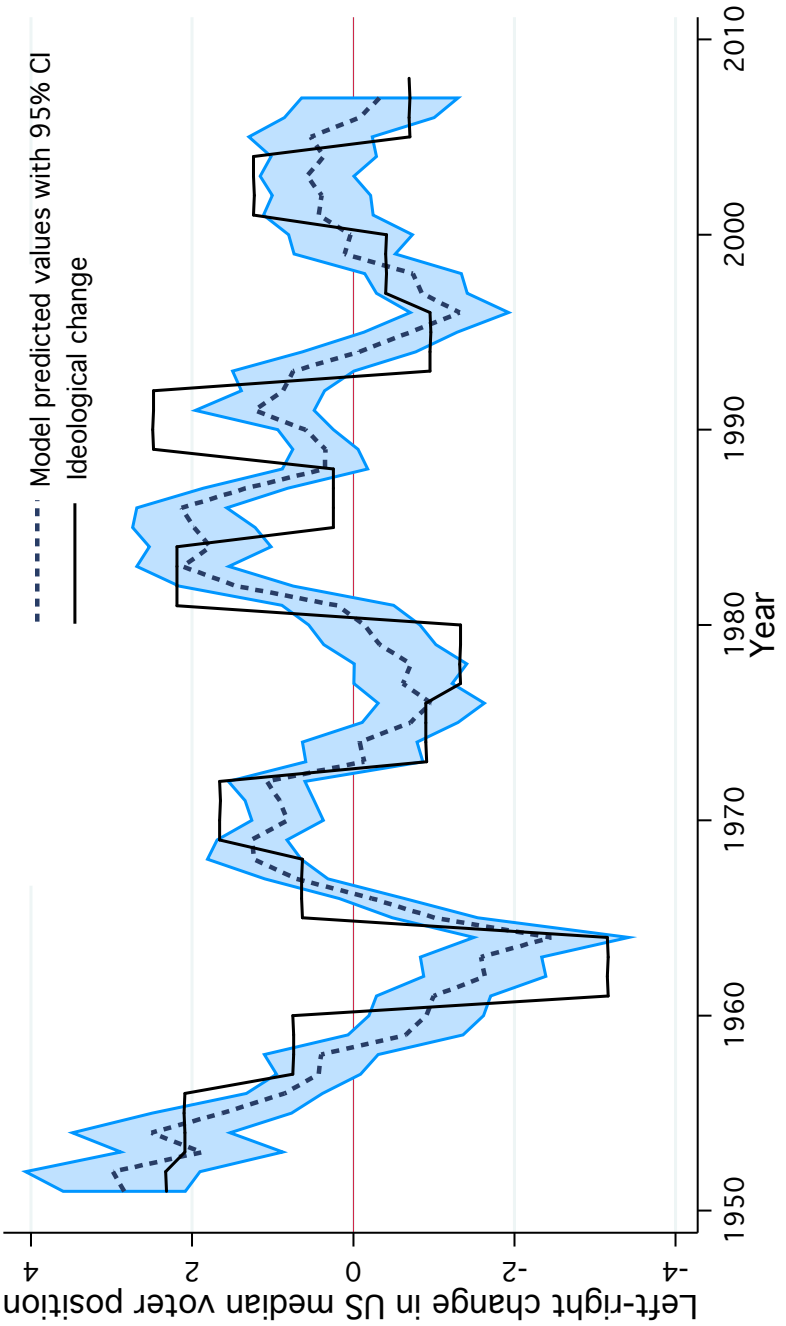


Figure 4.3: Fitting predicted values on US ideological change, 1950-2008

median voter perceives leftist parties as being associated with expansionary government, then a prospering economy with rising disposable income growth will proportionally increase the demand for public goods which translates into more electoral support for the liberal left. Conversely, if the median voter associates parties of the right with smaller government, then a dismal economy that depresses income growth will make voters less willing to sponsor public goods and generate more electoral support for the conservative right. The optimization results of the utility-based model presented in this paper provide a dynamic link for the fundamental relationship between changing economic conditions and policy sentiment that Durr [1993] first described. The empirical tests leave no doubt about the strength of that relationship.

The alignment of theory with empirical realities is what has plagued the redistributive model from the start. Still, the intuitive appeal of voting behaviour as a function of redistributive demands and inequality has turned the model into the predominant starting point when considering the economics of voting behaviour. The logic and results of the income growth model presented in this paper may complement recent iterations of the redistributive model and alternative models to develop a better understanding of voting behaviour.

The general lesson to be drawn from this work is that ideological change in the US is endogenous to variation in disposable income growth rates. This result nicely complements the finding in De Neve [2009*a*] that the left-right ideological

position of a country is endogenous to the variety of economic institutions that make up their respective political economy. With both the ideological position and ideological change endogenous to economic realities, it is impossible to deny the pervasive and long-run impact of economics on voting behaviour.

4.6 Appendix

Proof of proposition 1

With linear marginal utility of public goods, the optimal level of taxation increases with rising income growth.

$$U_v \;=\; [(1-\tau)\,\Delta y]^{\alpha} + \tau\,\Delta y\,(1-\delta) \;\mid\; \alpha, \delta, \tau < 1$$

FOC

$$\frac{dU_v}{d\tau} = (1-\delta)\Delta y - \alpha\;\Delta y((1-\tau)\Delta y)^{\alpha-1} = 0$$

$$\alpha\;\Delta y((1-\tau)\Delta y)^{\alpha-1} = (1-\delta)\Delta y$$

If $\Delta y \neq 0, \alpha \neq 0$,

$$((1-\tau)\Delta y)^{\alpha-1} = \frac{(1-\delta)}{\alpha}$$

$$\tau^* = 1 - \frac{\alpha^{\,\alpha-1}(1-\delta)^{\frac{1}{\alpha-1}}}{\Delta y}$$

Proof of proposition 2

If the marginal utility of public goods is sufficiently larger than marginal utility of disposable income growth ($\varepsilon > \alpha$) then the optimal level of taxation increases with rising income growth.

$$U_v \;=\; [(1-\tau)\,\Delta y]^{\alpha} + [\tau\,\Delta y\,(1-\delta)]^{\varepsilon} \;\mid\; \delta, \tau, \alpha, \varepsilon < 1 \; and \; \alpha < \varepsilon$$

FOC

$$\frac{dU_v}{d\tau} = -\alpha \Delta y[(1-\tau)\Delta y]^{\alpha-1} + \varepsilon \Delta y\,(1-\delta)\,[\tau \Delta y(1-\delta)]^{\varepsilon-1} = 0$$

$$\begin{aligned} \frac{\tau^{\varepsilon-1}}{(1-\tau)^{\alpha-1}} &= \frac{\alpha \Delta y^{\alpha}}{\varepsilon\,[(1-\delta)\,\Delta y]^{\varepsilon}} \\ &= \frac{\alpha}{\varepsilon\,(1-\delta)^{\varepsilon}} \Delta y^{\frac{\alpha}{\varepsilon}} \end{aligned}$$

Implicit derivative

$$F(\tau, \Delta y) = \frac{\tau^{\varepsilon-1}}{(1-\tau)^{\alpha-1}} - \frac{\alpha}{\varepsilon\,(1-\delta)^{\varepsilon}} \Delta y^{\frac{\alpha}{\varepsilon}} = 0$$

$$\begin{aligned} \frac{d\tau}{d\Delta y} &= -\frac{F_{\Delta y}}{F_{\tau}} = -\frac{-\frac{\alpha^2}{\varepsilon^2(1-\delta)^{\varepsilon}} \Delta y^{\frac{\alpha}{\varepsilon}-1}}{\frac{(\varepsilon-1)\tau^{\varepsilon-2}(1-\tau)^{\alpha-1} - (\alpha-1)(1-\tau)^{\alpha-2}\tau^{\varepsilon-1}}{\left[(1-\tau)^{\alpha-1}\right]^2}} \\ &= \frac{\frac{\alpha^2}{\varepsilon^2(1-\delta)^{\varepsilon}} \Delta y^{\frac{\alpha}{\varepsilon}-1}}{\{(1-\alpha)\,\tau - (1-\varepsilon)\,(1-\tau)\}\,\frac{\tau^{\varepsilon-2}(1-\tau)^{\alpha-2}}{\left[(1-\tau)^{\alpha-1}\right]^2}} \end{aligned}$$

Descriptive statistics

Table 4.4: Variable properties

Variable	N	Mean	Std Dev	Min	Max
$MedianVoter$	89	8.23	6.54	-7.77	20.91
$IncomeGrowth$	59	7.09	2.52	2.2	12.6
$GDPgrowth$	59	3.41	2.31	-1.9	8.7
$Unemployment$	59	5.61	1.46	2.9	9.7
$Inflation$	59	3.80	3.05	-2.08	13.91
$OECD.Income$	37	6.35	2.58	2.35	11.66
$OECD.GDPgrowth$	38	7.00	2.93	3.02	12.86
$OECD.Unemployment$	44	5.86	2.05	2.57	8.97
$OECD.Inflation$	38	6.83	3.40	2.37	14.86
$Defensespending$	59	6.45	2.76	3.00	14.2
$Inequality$	91	39.22	5.37	32.31	49.74
$Turnout$	61	55.71	4.11	48.9	62.8
$PresidentApproval$	59	55.78	13.35	23	84
$Taxrate$	54	14.06	3.02	7.35	18.44

Table 4.5: Variable definitions and sources

Variable	Definition and source
$MedianVoter$	The ideological center of the electorate; ranges from -100 (extreme left/liberal) to +100 (extreme right/conservative). Source: De Neve [2009*c*].
$IncomeGrowth$	The annual percent change in US disposable personal income in current dollars (code A067RP1). Source: Bureau of Economic Analysis.
$GDPgrowth$	The annual percent change in US real gross domestic product. Source: Bureau of Economic Analysis.
$Unemployment$	The yearly US unemployment rate from the employment status of the civilian noninstitutional population. Source: Bureau of Labor Statistics.
$Inflation$	The inflation rate or the annual percent change in the Consumer Price Index (CPI). Source: Bureau of Labor Statistics.
$OECD.Income$	The annual percent change in net national income per head for the OECD minus the US (in current dollars). Source: OECD.
$OECD.GDPgrowth$	The annual percent change in real gross domestic product (in current dollars) for the OECD minus the US. Source: OECD.
$OECD.Unemployment$	The yearly unemployment rate in the OECD minus the US. Source: OECD.
$OECD.Inflation$	The inflation rate or the annual percent change in consumer prices in the OECD minus the US (base year = 2005). Source: OECD.
$Defensespending$	The annual national defense outlays as a percentage of GDP. Source: OMB (The Budget for Fiscal Year 2009, Historical Tables).
$Inequality$	The top-10 percent fractile income share (including capital gains) in the US. Source: Piketty and Saez [2003].
$Turnout$	Voter turnout rate at presidential elections based on voting-age population. Source: McDonald and Popkin [2001].
$PresidentApproval$	Presidential approval rate at start of each year. Source: Gallup.
$Taxrate$	The average and marginal combined federal income and employee social security and medicare (FICA) tax rate for four-person families at the same relative positions in the income distribution (median income). Source: Treasury Department (through 1996); Tax Policy Center (1997-2008).

Table 4.6: Additional OLS and 2SLS error correction models on ideological change in the US (1950-2008).

	Δ*Median voter*				Δ*Median voter non-interpolated*			
	OLS		2SLS		OLS		OLS	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
$\Delta IncomeGrowth$	-0.22	0.026	-0.42	0.017	-2.68	0.000	-3.00	0.002
$IncomeGrowth_{t-1}$	-0.28	0.054	-0.43	0.068	-4.37	0.000	-4.02	0.006
$Medianvoter_{t-4}$	-0.33	0.000	-0.32	0.005	-1.83	0.000	-1.96	0.000
$Defensespending$	-0.33	0.050	-0.39	0.417	-3.71	0.000	-4.03	0.002
$Inequality$	0.13	0.038	0.09	0.288	-0.59	0.063	-0.41	0.187
$Turnout$	0.01	0.926	0.03	0.802			0.05	0.864
$PresidentApproval$	0.01	0.384	0.01	0.520			0.10	0.149
$Inflation$	0.02	0.830	0.07	0.559			-0.21	0.577
Intercept	1.01	0.839	2.85	0.717	95.79	0.001	82.43	0.018
N	58		36		14		14	
R-squared	0.58		0.37		0.94		0.97	
F statistic			3.72					

Note: The 2SLS instruments are the first differences and a one-year lag of disposable income growth rates in the OECD countries minus the US (1970-2008). There are insufficient observations to run a 2SLS on non-interpolated US median voter data. Regression coefficients with P-values are presented.

Table 4.7: Ordinary and 2SLS error correction models on ideological change in the US (1950-2008).

	Δ*Median voter OLS*				Δ*Median voter 2SLS*			
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
$\Delta GDPgrowth$	-0.08	0.241			0.08	0.733		
$GDPgrowth_{t-1}$	-0.20	0.027			-0.84	0.077		
$\Delta Unemployment$			0.19	0.277			1.05	0.021
$Unemployment_{t-1}$			-0.21	0.138			0.06	0.849
$\Delta Inflation$			-0.16	0.017			-0.33	0.023
$Inflation_{t-1}$			0.03	0.012			0.02	0.285
$Medianvoter_{t-4}$	-0.27	0.000	-0.29	0.000	-0.33	0.019	-0.26	0.006
$Defensespending$	-0.06	0.485	-0.17	0.132	-0.41	0.509	-0.20	0.650
$Inequality$	0.22	0.000	-0.16	0.259	0.24	0.009	-0.10	0.621
Intercept	-4.53	0.024	8.96	0.085	-1.26	0.803	6.49	0.384
N	58		58		36		37	
R-squared	0.56		0.61		0.00		0.48	
F statistic					0.97		1.95	

Note: Variable definitions are in the appendix. The instrumental variables used are the first differences and 1-year lags for GDP growth, unemployment, and inflation in the OECD countries minus the US (1970-2008). Regression coefficients with P-values are presented.

Chapter 5

Personality, Childhood Experience, and Political Ideology

5.1 Introduction

Recent research has started to detail the powerful influence that personality traits exert on political ideology and behaviour [Gerber et al., 2010; Mondak and Halperin, 2008; Mondak et al., 2010; Verhulst, Hatemi and Martin, forthcoming]. The rise of the "big five" personality traits model in the psychology literature has made it relatively easier for other disciplines, such as political science, to integrate measures of personality into applied research. Because of their predictive power and relative stability throughout the course of life, personality traits merit the full attention of social and behavioural scientists. In particular, their inclusion into models of political ideology offers much potential to account for previously

unexplained variance in ideology. The challenge for political scientists thus far has been twofold: first, to collect data from samples which also include meaningful covariates for the study of political ideology; and second, to collect samples large enough to probe beyond direct effects of personality on ideology to explore the way that personality might interact with known environmental influences on the development of ideology.

Making use of newly released Add Health Wave IV data [Harris et al., 2009], which now includes measures for the big five traits, we perform the largest tests to date on the influence of personality on political ideology. Corroborating initial findings in political psychology, we find that "openness to experience" strongly predicts a higher self-reported score on liberal ideology ($p \leq 0.000$) and that "conscientiousness" strongly predicts a more conservative ideology ($p \leq 0.000$).

The scope of the data enables us to make two additional contributions to the study of political ideology. First, leveraging the family sampling structure in Add Health, we are able to explore the relationship between personality traits and political ideology in a new and more robust way. The introduction of family fixed effects leads us to discard the significant results on "extraversion" and "neuroticism" obtained using standard regression analysis, and provides a new level of robustness to the effects of "openness" and "conscientiousness" on political ideology. Second, the longitudinal nature of the Add Health data allows us to explore the effects of various childhood exposures to better understand so-

cial and environmental contributions to the development of ideology. Work in behaviour genetics, sociology, and political science suggests that factors related to childhood experience have profound implications on behaviours and attitudes later in life [Campbell, 2006; Caspi et al., 2002] that could be related to political orientations. Similarly, childhood social experiences have a direct impact on adult political outcomes [Settle, Bond and Levitt, 2011], but may also interact with a person's innate traits to influence their ideology later in life [Settle et al., 2010]. We interact personality with a variety of childhood experiences and find that childhood trauma moderates the influence of the "openness to experience" trait on political ideology.

It is increasingly understood that variation in political ideology is a result of both the social and environmental experiences throughout the course of life and the innate predispositions with which individuals are endowed from the start of life [Alford, Funk and Hibbing, 2005; Hatemi et al., 2011, 2010]. As such, a comprehensive understanding of the development of political ideology requires the consideration of both of these fundamental influences.

5.2 Literature review

The "big five" traits model represents five dimensions or clusters of personality that jointly describe human personality [Digman, 1990; McCrae and Costa, 1999].

These five major traits are (i) openness to experience; (ii) conscientiousness; (iii) extraversion; (iv) agreeableness; and (v) neuroticism. Openness relates to open-mindedness and the cognitive complexity associated with curiosity, imagination, and high-risk behaviour. Conscientiousness relates to responsibility, order and organization, dutifulness, and the self control required to possibly satisfy a need for achievement. Agreeableness is associated with empathy and a willingness to compromise in order to foster cooperative interactions. Extraversion is related to being sociable, lively, and proactively asserting oneself. Neuroticism is viewed as emotional instability and a tendency to experience negative emotions. A comprehensive overview of the big five personality traits is developed elsewhere [Almlund et al., 2011; Digman, 1990; McCrae and Costa, 1999; Mondak and Halperin, 2008]. Over time, the replication across myriad samples worldwide has led to the broad acceptance that personality is defined along the lines of these five core traits and the "big five" model emerged as a dominant model in the psychology literature [Mondak and Halperin, 2008].

Several important early treaties in political science touched upon the influence of personality on political behaviours [Adorno et al., 1950; Campbell et al., 1960; McClosky, 1958] and a handful more addressed the role of personality in political socialization [Froman, 1961; Greenstein, 1965] but the research agenda never gained significant momentum. While the role of personality traits on political behaviour of the masses was essentially ignored for much of the second half

of the 20th century, the study of the effects of personality thrived in other disciplines. The body of work written by John Jost and colleagues suggests that there is both a core element to political ideology that is rooted in a person's underlying predispositions [Jost, 2006], and that motivated social cognition reinforces these tendencies; a variety of psychological variables related to threat and uncertainty have been found to be related to political ideology, including openness to experience [Jost et al., 2003, 2007].

The first recent developments and small-scale tests of the role of personality in political behaviour took place in political psychology [Carney et al., 2008; Heil, Kossowska and Mervielde, 2000; Schoen and Schumann, 2007] and only very recently did the big five traits receive full consideration by political scientists [Gerber et al., 2010; Mondak and Halperin, 2008; Mondak et al., 2010; Verhulst, Hatemi and Martin, forthcoming]. These studies introduce the big five traits, suggest a framework for the study of personality and political behaviour across economic and social policy domains, and investigate the structure of the relationship between genes, personality, and political outcomes. The most powerful and consistent result to come out of this emerging literature is that individuals that score high on the "openness" trait are more likely to adopt a liberal ideology, whereas a high score on the "conscientiousness" trait is associated with more conservative political attitudes [Gerber et al., 2010].

This more recent work in political science has suggested that in addition to the

focus on the direct effects of personality on ideology, it is important to consider the ways in which personality might affect the way we interpret life experiences, and thus the way our environment affects our ideology. A tentative start has been made on this exploration. Mondak et al. [2010] explore the role of political network size interacting with personality to affect exposure to disagreement, finding that extraversion positively interacts with network size to increase cross cutting exposures while the opposite is true for agreeableness. Digging even further into innate biological differences that precede personality, Settle et al. [2010] find that the number of friends in childhood is associated with increased liberalism as a young adult, but only for those respondents that have one or more alleles of a gene variant associated with openness to experience, the long allele of DRD4.

Literature from behavioural genetics, psychology, sociology and political science suggests a multitude of other contextual effects that may act to mediate or moderate the effects of personality on political ideology. As Shanahan and Hofer [2005] note in reference to gene and environmental interactions, the environment can serve both to trigger or suppress innate tendencies. Notably, scholars have spent a considerable amount of attention on the idea of childhood experience. Seminal work in behaviour genetics on the influence of child maltreatment and life stress [Caspi et al., 2002, 2003] suggests that childhood trauma has the ability to interact with the innate component of personality and to leave lasting psychological and behavioural imprints [Sameroff, Lewis and Miller, 2000]. In addition

to measures of trauma, we also capture other important aspects of the childhood experience including number of friends and the perception of feeling safe in one's school or neighborhood.

5.3 Data and methods

5.3.1 Sample

Data is from the National Longitudinal Study of Adolescent Health (Add Health) [Harris et al., 2009].[1] Add Health was started in 1994 in order to explore the health-related behaviour of adolescents in grades 7 through 12. By now, 4 waves of data collection have taken place and participating subjects are around 30 years old. The first wave of the Add Health study (1994–1995) selected 80 high schools from a sampling frame of 26,666. The schools were selected based on their size, school type, census region, level of urbanization, and percent of the population that was white. Participating high schools were asked to identify junior high or middle schools that served as feeder schools to their school. This resulted in the participation of 145 middle, junior high, and high schools. From those schools, 90,118 students completed a 45-minute questionnaire and each school was

[1]This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. No direct support was received from grant P01-HD31921 for this analysis.

asked to complete at least one School Administrator questionnaire. This process generated descriptive information about each student, the educational setting, and the environment of the school. From these respondents, a core random sample of 12,105 adolescents in grades 7-12 were drawn plus several over-samples, totaling more than 27,000 adolescents. These students and their parents were administered in-home surveys in the first wave. Wave II (1996) was comprised of another set of in-home interviews of more than 14,738 students from the Wave I sample and a follow-up telephone survey of the school administrators. Wave III (2001–2002) consisted of an in-home interview of 15,170 Wave I participants. Finally, Wave IV (2008) consisted of an in-home interview of 15,701 Wave I participants. The result of this sampling design is that Add Health is a nationally representative study. Women make up 49% of the study's participants, Hispanics 12.2%, Blacks 16.0%, Asians 3.3%, and Native Americans 2.2%. Participants in Add Health also represent all regions of the United States.

In Wave IV only, subjects were asked a battery of questions to gauge their position on the "big five" personality traits. The specific questions and their descriptive statistics are given in Tables 7–8 in the Appendix. Participants were also asked in Wave IV about their political ideology on the general conservative-liberal scale. In the first three waves of the study, respondents were asked questions about a variety of experiences related to childhood experiences and contexts. Alternative answers to these questions, such as "refused" or "don't know," were

discarded for the purpose of this study (typically less than 1% of interviewees gave such a response). Details on these questions are also available in the Appendix.

In Wave I of the Add Health study, researchers screened for sibling pairs including all adolescents that were identified as twin pairs, full-siblings, half-siblings, or unrelated siblings raised together. The sibling-pairs sample is similar in demographic composition to the full Add Health sample [Jacobson and Rowe, 1998]. Consequently, in all regression models we cluster the standard errors of our estimates in order to better account for the fact that a subset of our observations are not independent. The structure of this data also allows us to compare siblings to each other while holding the family environment constant, which aids our causal interpretation of the relationship between personality, childhood context, and political ideology as an adult.

5.3.2 Methods

The analysis proceeds in four parts. First, we check the direct effects of personality on political ideology. We have strong expectations from previous work about the direction and significance of each trait on ideology but the large sample size and the available sibling clusters allow us to be more precise in our estimates than previous work. Second, we seek to measure the direct effects of various childhood experiences on political ideology as an adult. Next, we hypothesize that childhood

factors may be more strongly related to political ideology for people of some personality types than others. As such, we present results for analyses that include interaction terms for personality and childhood experience variables. Finally, we extend on the significant interaction effect that we find between childhood trauma and openness to experience using Sobel-Goodman mediation analyses in order to better understand the nature of the relationship between these two contributing factors to ideology.

All models employ ordered probit regressions on a five-point scale of political ideology, where "very liberal" receives a score of "5". A variety of controls plausibly related to political ideology are incorporated into the models, including age, gender, race, log of income, and education level. In models looking at the childhood experience variables we include an additional control variable for whether or not food stamps were allocated in that period, because the household socio-economic status of the childhood upbringing may bias childhood experience (about 24% of our participants recall being the recipient, or others in their household, of public assistance such as food stamps).

5.4 Results

5.4.1 Direct effects of personality on ideology

Based on previous work on the role of personality on ideology, we expect the openness and conscientiousness traits to be strongly associated with political ideology. Especially in the United States, liberalism is conceived of embracing change and pro-active policies, whereas conservatism is likened to personal responsibility, caution, and maintaining order [Mondak and Halperin, 2008]. Our results align with our expectations. Figure 5.1 visualizes the marginal effects on ideology of each personality trait based on the ordered probit regression analysis reported in Table 5.1. Corroborating and extending the initial findings in political psychology, we find that "openness to experience" strongly predicts a higher self-reported score on liberal ideology ($p \leq 0.000$) and that "conscientiousness" strongly predicts a more conservative ideology ($p \leq 0.000$). Each personality trait is measured on a scale from 4 to 20. To illustrate the strength of the effects, consider increasing the "openness to experience" trait of an individual from a score of 12 (20th percentile) to a score of 16 (80th percentile); keeping all else constant, this would increase the likelihood of this person self-reporting to be very liberal by approximately 71%. Significant effects are also obtained for "neuroticism" ($p \leq 0.000$) and "extraversion" ($p \leq 0.000$) being positively associated with liberal ideology. Agreeableness ($p = 0.277$) does not produce a significant effect on overall political ideology but

this may be due to separate and contradicting tendencies on economic and social policies that are not captured on the aggregate conservative-liberal spectrum used here [Gerber et al., 2010; Verhulst, Hatemi and Martin, forthcoming].

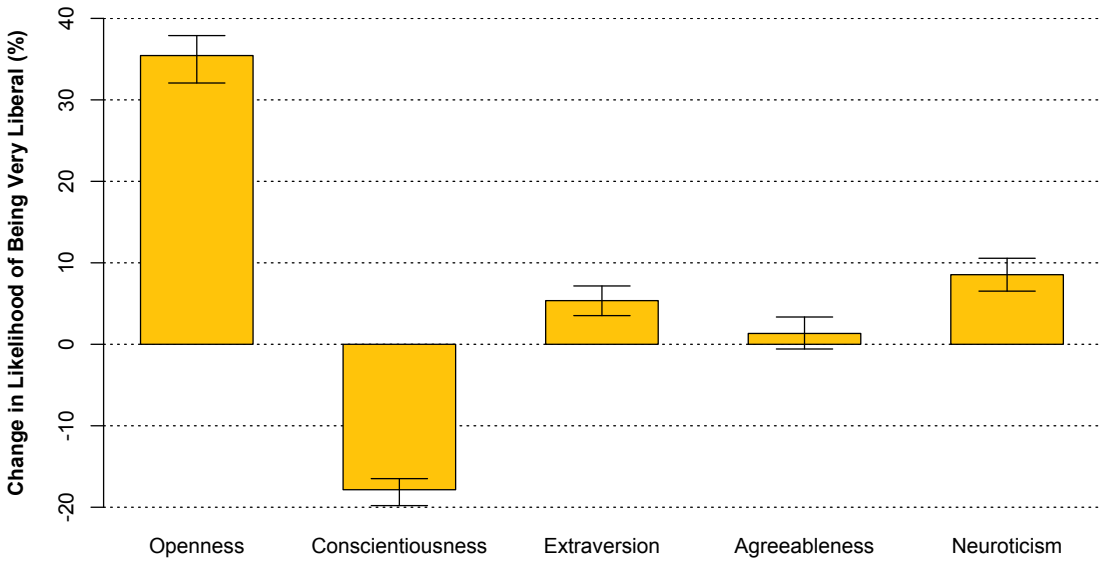
Table 5.1: Ordered probit model of political ideology on the "big five" personality traits

	Political ideology		
	Coeff.	*SE*	P-value
Openness	0.065	0.002	0.000
Conscientiousness	-0.036	0.002	0.000
Extraversion	0.009	0.002	0.000
Agreeableness	0.003	0.003	0.277
Neuroticism	0.015	0.002	0.000
Age	-0.019	0.003	0.000
Male	-0.161	0.012	0.000
Black	0.084	0.020	0.000
Hispanic	0.101	0.073	0.000
Asian	0.075	0.081	0.351
Income (log)	0.015	0.002	0.000
Education	0.035	0.003	0.000
Intercept	2.759	0.294	0.000
N		13,999	
$PseudoR^2$		0.019	

Note: Ordered probit model of political ideology (1 = very conservative to 5 = very liberal) on the "big five" personality traits and control variables. Descriptive statistics are provided in the Appendix. Standard errors (SE) and P-values are also presented.

Next, we leverage the sibling clusters in the Add Health data to compare siblings to each other by performing a type of matching procedure, in which we are controlling for the family environment. First, we construct an overall mean value for each of the personality traits of all the siblings within each family,

Figure 5.1: Marginal effects of the "big five" personality traits on political ideology



Note: Variation in the "big five" personality traits is associated with significant changes in political ideology. Marginal effects are presented, based on simulations of Table 5.1 model regression parameters, along with 95% confidence intervals. For each personality trait, all other traits and variables are held at their means. Outcome is set as the "very liberal" category. Change in outcome is based on a one standard deviation increase from the mean in the respective personality trait.

and then calculate the difference between every individual's trait score and their family mean. This leads us to have two measures of variation in personality traits—that *between* families and that *within* families. By using the variation in within-family traits, we can test whether respondents who are, for example, more open than their siblings are also more likely to report being liberal. This family-based method specifies a variance-components based association analysis for sibling pairs and was first suggested in the behavioural genetics literature by Boehnke and Langefeld [1998] and Spielman and Ewens [1998]. By decomposing personality trait scores into between-family (b) and within-family (w) components it is possible to control for spurious results due to population stratification because only the coefficient on the between-family variance (β_b) will be affected by covariates such as the socio-economic status, race, and localization of the family. The association result is determined by the coefficient on the within-family variance (β_w) which, in essence, shows whether variation in personality traits among siblings may be significantly associated with differences in political ideology between siblings. The following regression model is employed to perform this family-based association test:

$$Y_{ij} = \beta_0 + \beta_w T_{wij} + \beta_b T_{bj} + \beta_k Z_{kij} + U_j + \epsilon_{ij}$$

where i and j index subject and family respectively. T_w is the within-family

variance component of the individual's personality traits (measured as subject trait minus their family's mean trait score), T_b is the between-family variance component of the individual's traits (measured as their family's mean genotype score). Z_k is a matrix of variables to control for individual sibling differences (age, gender, income, education), U is a family random effect that controls for potential genetic and environmental correlation among family members, and ϵ is an individual-specific error.

Family-based designs eliminate the problem of population stratification by using family members, such as siblings, as controls. While a family-based design is very powerful in minimizing Type I error (false positives) due to omitted variable bias, it reduces the power to detect true associations, and is thus more prone to Type II error or false negatives [Xu and Shete, 2006]. Of course, when data for siblings are available—as is the case in Add Health—then a family-based test produces the more robust results.

Table 5.2 reports the results of our family-based model for the influence of the big 5 personality traits on political ideology. The prior findings on openness to experience and conscientiousness are robust to this model specification. We find that respondents who are more open than their siblings are more likely to report being liberal-minded and respondents that are more conscientious than their siblings are more likely to report being conservative-minded. The prior results on extraversion and neuroticism do not survive the family-based model

specification and drop their statistical significance.

Table 5.2: Ordered probit model of political ideology on the "big five" personality traits decomposed into within and between family variance components

	Political ideology		
	Coeff.	SE	P-value
Openness: within-family variance	0.019	0.008	0.031
Openness: between-family variance	0.079	0.011	0.000
Conscientiousness: within-family variance	-0.029	0.008	0.001
Conscientiousness: between-family variance	-0.036	0.010	0.000
Extraversion: within-family variance	0.009	0.008	0.270
Extraversion: between-family variance	0.011	0.009	0.212
Agreeableness: within-family variance	0.018	0.011	0.114
Agreeableness: between-family variance	-0.003	0.012	0.792
Neuroticism: within-family variance	0.008	0.008	0.296
Neuroticism: between-family variance	0.022	0.010	0.022
Age	-0.013	0.009	0.156
Male	-0.172	0.038	0.000
Income (log)	0.020	0.006	0.002
Education	0.025	0.009	0.006
Intercept	2.226	0.398	0.000
N		3,967	
$PseudoR^2$		0.018	

Note: Descriptive statistics are provided in the Appendix. Standard errors (SE) and P-values are also presented.

5.4.2 Direct effects of childhood experience on ideology

We next consider a variety of childhood experiences that may affect political ideology later in life. The wording and distributions for each of the childhood variables can be found in the Appendix. These childhood variables are first considered in isolation using each in a separate regression, and then we consider

them jointly.

First, we consider childhood trauma. We measure childhood trauma by loading the three available questions on child maltreatment into an index. These questions gauge verbal, physical, and sexual abuse in childhood. We report that about half of our sample population has experienced some level of maltreatment by a parent or adult caregiver before the age of 18. For the precise questions and descriptive statistics please refer to the Appendix. We do not have an ex-ante hypothesis about the direction of a possible effect but do anticipate that the lasting psychological and behavioural consequences of childhood trauma may have a powerful influence on ideology.

Next, we consider the broader context in which a respondent was raised, and whether they felt safe in their school and neighborhood. We hypothesize that these experiences will be less salient to an individual than trauma in the home, but an adolescent's early orientation toward their community has been shown to affect other political attitudes and behaviours [Settle et al., 2010].

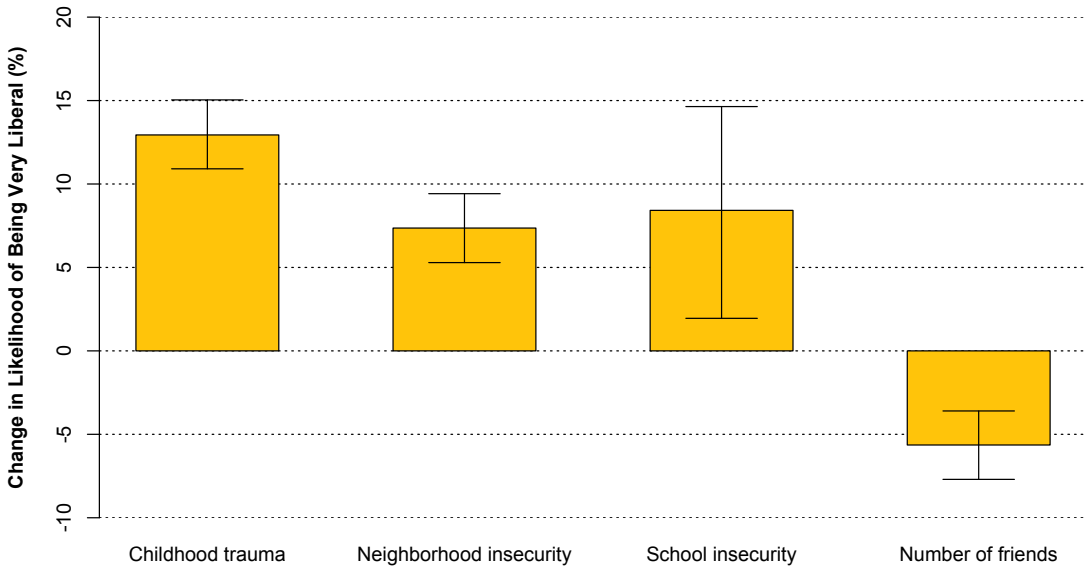
Finally, less traumatic experiences can also serve to shape a person's world view and thus their political ideology. A large body of work demonstrates that the attitudinal composition of friendships influence our political preferences [Huckfeldt, Johnson and Sprague, 2002, 2004; Mutz, 2002; Parsons, 2009]. For some people, friendship itself may activate certain ideological positions [Settle et al., 2010] and the attitudes of the network in which one is embedded in high school

affect later political behaviour [Settle, Bond and Levitt, 2011]. We therefore also consider the total number of friends that the individual has named—or is being named by—in Wave I of the Add Health data collection.

Table 5.3 shows the coefficients of these four variables and Figure 5.2 shows the simulated marginal effects with their confidence intervals. These traumatic, neighborhood, and social aspects of childhood all obtain significant main effects on political ideology later in life. Consistent with the small literature that exists on the topic [Campbell, 2006; Lay, Gimpel and Schuknecht, 2003], these results suggest that childhood experience matters for the way the political world is viewed as adults. To understand the relative effect of these childhood experiences in relation to each other, we combine them in a single regression. The results of this combined model are shown in Table 5.10 in Appendix. Childhood trauma and number of friends continue to come in significantly. However, the collinearity of the school and neighborhood insecurity measures weakens their individual effects in a joint analysis.

The interpretation of these direct effects of childhood experience on political ideology falls outside the scope if this paper but merits further research and discussion. A tentative logic would be that the experience of childhood trauma, as well as school and neighborhood insecurity, may instill a heightened sense of vulnerability in individuals. In turn, a sense of individual vulnerability is likely to incline people to political views that favor social programs and government

Figure 5.2: Marginal effects of the childhood experience variables on political ideology



Note: Variation in the childhood experience variables is associated with significant changes in political ideology. Marginal effects are presented, based on simulations of model regression parameters (Table 5.3), along with 95% confidence intervals. For each indicator, all other variables are held at their means. Outcome is set as the "very liberal" category. Change in outcome is based on a one standard deviation increase from the mean in the respective childhood indicator.

Table 5.3: Ordered probit models of political ideology on childhood environment variables (independently)

	Political ideology				
	Coeff.	SE	P-value	N	R^2
Childhood trauma	0.076	0.007	0.000	13,799	0.01
Neighborhood insecurity	0.032	0.006	0.000	9,526	0.01
School insecurity	0.035	0.017	0.034	9,519	0.01
Number of friends	-0.007	0.001	0.000	9,993	0.01

Note: Ordered probit models of political ideology (1 = very conservative to 5 = very liberal) on the childhood environment variables. Coefficients are presented for regressions that considered these childhood variables separately controlling for gender, race, education, log of income, and whether food stamps were distributed in the childhood household. A full model that includes all childhood variables is given in Appendix. Descriptive statistics are provided in the Appendix. Standard errors (SE), P-values, Number of observations, and the R-squared are also presented.

intervention if a need arises. We also speculate that individuals who suffered childhood maltreatment will be wary of authority and order, while the added complexity of dealing with negative childhood emotions may draw them to a greater variety of experiences and show less impulse control. Such psychological and behavioural consequences of childhood trauma may further distance these individuals from conservative principles.

5.4.3 Interaction effects of childhood experience and personality on ideology

As noted in the literature review, scholars theorize that much of the influence of personality on political ideology may be related to the way that personality

moderates the interpretation of the environmental influences around us. To address this question, we interact the childhood environment variables with the five personality traits and estimate their effect on ideology.

Only one interaction is significant; the remaining models suggest that the influence of personality and these contextual variables are additive in nature. When interacting the personality traits with childhood trauma in an ordered probit regression we find that childhood trauma intensifies the effect of the "openness to experience" trait on liberal political ideology as we move up in categories of openness. The interaction term for openness x childhood trauma in the regression analysis produces a positive and significant coefficient (p=0.002, see Table 5.4). In short, the openness trait appears even more predictive of ideology for abused people than for others. This is most strongly the case for individuals that report having experienced all three levels of abuse: verbal, physical, and sexual.

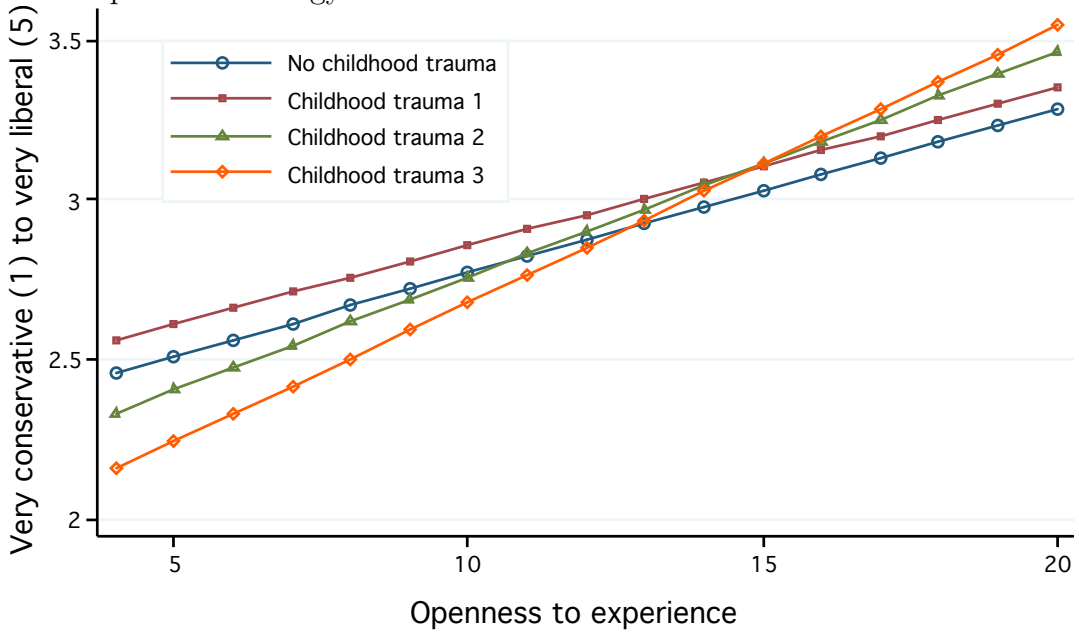
Figure 5.3 plots the regression output on the political ideology scale for each category of the openness trait, split between the varying degrees of childhood trauma. We note that childhood trauma intensifies the effect of openness on ideology. Figure 5.3 illustrates the positive association between "openness to experience" and liberal political ideology, as well as the interaction effect of openness and childhood trauma. Given the novelty of this finding we further explore the relationship between childhood trauma and political ideology in the next section.

Table 5.4: Ordered probit model of political ideology on the "big five" personality traits, childhood trauma, and interaction terms

	Political ideology		
	Coeff.	*SE*	P-value
Openness	0.059	0.003	0.000
Conscientiousness	-0.038	0.003	0.000
Extraversion	0.009	0.003	0.005
Agreeableness	0.005	0.005	0.333
Neuroticism	0.008	0.003	0.011
Childhood trauma	-0.118	0.120	0.325
Openness x trauma	0.009	0.003	0.002
Conscientiousness x trauma	0.003	0.002	0.172
Extraversion x trauma	0.001	0.003	0.659
Agreeableness x trauma	-0.004	0.005	0.483
Neuroticism x trauma	0.002	0.004	0.573
Age	-0.016	0.003	0.000
Male	-0.173	0.012	0.000
Black	0.075	0.023	0.001
Hispanic	0.101	0.022	0.000
Asian	0.168	0.026	0.000
Income (log)	-0.012	0.007	0.072
Education	0.037	0.003	0.000
Food stamps	-0.054	0.022	0.015
Intercept	2.515	0.368	0.000
N	12,852		
$PseudoR^2$	0.020		

Note: Ordered probit model of political ideology (1 = v. conservative to 5 = v. liberal) on the "big five" personality traits, childhood trauma, their interaction terms, and control variables. Descriptive statistics are provided in the Appendix. Standard errors (SE) and P-values are also presented.

Figure 5.3: Interaction plot of childhood trauma and the "openness" personality trait on political ideology



Note: Childhood trauma interacts with the "openness" personality trait to influence political ideology. Regression output for political ideology (1 = very conservative; 5 = very liberal) is plotted for each category of the openness trait, split between the varying degrees of childhood trauma. To obtain this figure, a linear regression instead of an ordered probit analysis is applied on the model specified in Table 5.4. For variable details please refer to the Appendix.

5.4.4 Exploring the relationship between openness to experience, childhood trauma, and liberal ideology

In the previous section we established that there exists a significant interaction between childhood trauma and openness on liberal ideology, in addition to the direct positive effects reported earlier. What we capture in a statistical interaction, however, represents a potentially complicated relationship. It is possible that childhood trauma (measured as an index of verbal, physical, and sexual abuse) is independent of the personality trait, and that we are measuring a true interaction. But it is also possible that children who are more open may be more likely to be victims of trauma because of a propensity to engage in behaviours that may elicit maltreatment by their parents. We next seek to gain some leverage on this question.

First, we look more closely at the relationship between openness to experience and childhood maltreatment. The openness trait is positively associated with such traumatic experience (χ^2=94, p$\leq$0.000). Because of the timing in which the variables are measured, it is impossible to determine if being open makes a child more likely to be a victim of abuse, or if being a victim of abuse makes a child more likely to be open, but it is clear that the two variables are not independent of each other.

This suggests an analogous situation to the evocative gene-environment inter-

action described by Scarr and McCartney [1983]. Being open may lead adolescents to have an increased likelihood of being the victim of maltreatment, which then reinforces the natural tendency of open people to report being politically liberal. Thus, the relationship is not a true interaction in the sense that trauma is an exogenous occurrence, but it does amplify an open person's natural tendency toward being liberal. People who are open are more likely to be liberal than are people who are not, and people who are traumatized are more likely to be liberal than are people who are not traumatized.

In order to get a better sense for the influence that the openness trait and childhood trauma variables may have on each other's respective influence on liberal political ideology we perform Sobel-Goodman mediation tests. Both independent variables could be considered a mediator for one another if they carry some part of the influence that each has on political ideology. Following the textbook approach to mediation analysis [Stata, 2011], mediation would occur in our case when (1) the independent variable (IV) significantly affects the mediator, (2) the IV significantly affects political ideology in the absence of the mediator, (3) the mediator has a significant unique effect on political ideology, and (4) the effect of the IV on political ideology shrinks upon the addition of the mediator to the model. We run Sobel-Goodman mediation tests for both childhood trauma as mediator (Table 5) and openness to experience as mediator (Table 6). We also bootstrap (200 replications) to generate percentile and bias-corrected confidence

intervals.

The results of our Sobel-Goodman mediation tests show that both trauma and openness are significant mediators for each others' influence on political ideology. However, the mediating force that openness has is about ten times the size of the mediating force of childhood trauma. This indicates that openness carries much more of the traumatic influence across to political ideology than vice versa. This leads us to consider the openness to experience trait as the dominating influence in this complex relationship. This aligns with recent work in behavioural genetics that shows that the big five personality traits are to a large extent innate with heritability estimates ranging around 50% [Verhulst, Hatemi and Eaves, 2009; Verhulst, Hatemi and Martin, forthcoming]. This understanding that personality traits are developed mostly prior to environmental influences is also acknowledged in recent important contributions to the literature on the influence of personality on political ideology and behaviour [Gerber et al., 2010; Mondak et al., 2010].

Table 5.5: Sobel-Goodman mediation tests for political ideology on the openness to experience trait mediated by childhood trauma

Sobel-Goodman Mediation Tests: Liberal (DV), Openness (IV), Trauma (MV)				
	Coeff.	*SE*	Z	P-value
Sobel	0.0008	0.0002	3.975	0.000
Goodman-1	0.0008	0.0002	3.944	0.000
Goodman-2	0.0008	0.0002	4.007	0.000
Proportion of total effect that is mediated: 1.4%				
Percentile and Bias-corrected bootstrap results for Sobel (200 replications):				
Coefficient:	0.0008			
Percentile 95% confidence interval:		0.0004 – 0.0012		
Bias-corrected 95% confidence interval:		0.0005 – 0.0013		

Note: Sobel-Goodman mediation tests for political ideology (1 = very conservative to 5 = very liberal) on the openness to experience trait mediated by childhood trauma. Descriptive statistics are provided in the Appendix. Standard errors (SE) and Z and P-values are also presented.

Table 5.6: Sobel-Goodman mediation tests for political ideology on childhood trauma mediated by the openness to experience trait

Sobel-Goodman Mediation Tests: Liberal (DV), Trauma (IV), Openness (MV)				
	Coeff.	*SE*	Z	P-value
Sobel	0.008	0.002	5.334	0.000
Goodman-1	0.008	0.002	5.327	0.000
Goodman-2	0.008	0.002	5.341	0.000
Proportion of total effect that is mediated: 13.1%				
Percentile and Bias-corrected bootstrap results for Sobel (200 replications):				
Coefficient:	0.008			
Percentile 95% confidence interval:		0.005 – 0.011		
Bias-corrected 95% confidence interval:		0.005 – 0.011		

Note: Sobel-Goodman mediation tests for political ideology (1 = very conservative to 5 = very liberal) on childhood trauma mediated by the openness to experience trait. Descriptive statistics are provided in the Appendix. Standard errors (SE) and Z and P-values are also presented.

5.5 Discussion

A growing body of evidence suggests that there are inherent differences between people that affect their political ideology and behaviour [Alford, Funk and Hibbing, 2005; Fowler, Baker and Dawes, 2008; Hatemi et al., 2011, 2010; Oxley et al., 2008; Settle et al., 2010; Verhulst, Hatemi and Martin, forthcoming]. Simultaneously, there has been a call to more deeply consider the theory behind *why* these individual differences should matter as well as to consider *how* the mechanisms might operate. For the study of the relationship between personality and ideology, this means developing stronger theories which explain how the particular components of the personality trait should influence political thinking and how it could make people differentially responsive to the environmental exposures we know also affect the development of ideology.

The most recent release of the Add Health data gives us a unique opportunity to explore how the "big five" personality traits and contextual influences directly affect political ideology, as well as the way in which personality traits may make people differentially responsive to aspects of their environment that shape political beliefs. The longitudinal nature of the study suits it especially well to examine how innate differences like personality interact with a variety of life course events in childhood, adolescence and early adulthood. The richness of data on respondent life history is perhaps unmatched in the standard studies

used in political science.

Despite the richness of the data in certain regards, we want to make clear three limitations of the data. First, the Add Health sample is restricted to individuals who are about 30 years old, though the distribution of answers is typical of other political ideology and personality surveys and may suggest some degree of generalizability. The age limitation is unlikely to substantially distort our results, but should be acknowledged. Second, recent work has noted that using the standard liberal-conservative ideological spectrum does not allow for more precise relationships between personality and, for example, social and economic policy dimensions [Gerber et al., 2010; Verhulst, Hatemi and Martin, forthcoming]. This may explain why the agreeableness trait does not appear to be associated with overall political ideology but does influence more specific political attitudes [Gerber et al., 2010]. Finally, the personality measures are collected in Wave IV in early adulthood simultaneously with the political ideology measures. While personality has been shown to be relatively stable over the life course [Costa and McCrae, 1988; Soldz and Vaillant, 1999], we are measuring personality after the exposure to the childhood context. This makes it difficult to disentangle whether the personality factors are entirely independent of the specific contexts measured, contribute to the contextual exposure, or are in part a product of the contextual exposure. Our usage of the family-structure of the data and the mediation analyses helps disentangle this relationship, but it must be clear that we cannot fully

do so.

The study of political ideology and behaviour has benefitted greatly from incorporating a broader notion of what contributes to the development of political attitudes, including factors derived both from our genes and from our environments. The findings of this study provide new evidence for the idea that differences in political ideology are deeply intertwined with variation in the nature and nurture of individual personalities.

5.6 Appendix

Questions and variable components

Political ideology

In terms of politics, do you consider yourself very conservative, conservative, middle-of-the-road, liberal, or very liberal? (1=v. conservative to 5=v. liberal)

Personality traits:

Additive indices for the "big 5" personality traits by loading their 4 component questions.

Openness

(1) I have a vivid imagination (1=strongly disagree to 5=strongly agree)
(2) I am not interested in abstract ideas *(reversed)*
(3) I have difficulty understanding abstract ideas *(reversed)*
(4) I do not have a good imagination *(reversed)*

Conscientiousness

(1) I get chores done right away
(2) I often forget to put things back in their proper place *(reversed)*
(3) I like order
(4) I make a mess of things *(reversed)*

Extraversion

(1) I am the life of the party
(2) I don't talk a lot *(reversed)*
(3) I talk to a lot of different people at parties
(4) I keep in the background *(reversed)*

Agreeableness

(1) I sympathize with others' feelings
(2) I am not interested in other people's problems *(reversed)*
(3) I feel others' emotions
(4) I am not really interested in others *(reversed)*

Neuroticism

(1) I have frequent mood swings
(2) I am relaxed most of the time *(reversed)*
(3) I get upset easily
(4) I seldom feel blue *(reversed)*

Childhood trauma

An index that takes the value of 0, 1, 2, or 3 by considering the following three questions on verbal, physical, and sexual abuse. Each non-zero answer to these questions is added as a single point to the childhood trauma variable index.

(1) Before your 18th birthday, how often did a parent or other adult caregiver say things that really hurt your feelings or made you feel like you were not

Table 5.7 – continued from previous page

Questions and variable components
wanted or loved? (from 0="this has never happened" to 5="more than ten times") (2) Before your 18th birthday, how often did a parent or adult caregiver hit you with a fist, kick you, or throw you down on the floor, into a wall, or down stairs? (3) How often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way, or force you to have sexual relations?
Neighborhood insecurity I feel safe in my neighborhood (1 = strongly agree to 5 = strongly disagree; asked in Wave I, 1994-95)
School insecurity I feel safe in my neighborhood (1 = strongly agree to 5 = strongly disagree; asked in Wave I, 1994-95)
Number of friends Individuals were asked about their social network in the in-school survey as part of Wave I. They were allowed to nominate up to five female and five male friends. This measure adds the number of friends that were named as well as the number of times the respondent was named as a friend.

Table 5.7: Survey questions and variable components.

	Mean	Std Dev	Min	Max
Political ideology	3.04	0.93	1	5
Openness	14.50	2.45	4	20
Conscientiousness	14.64	2.70	4	20
Extraversion	13.22	3.06	4	20
Agreeableness	15.24	2.41	4	20
Neuroticism	10.45	2.74	4	20
Childhood trauma	0.71	0.82	0	3
Neighborhood insecurity	2.04	1.07	1	5
School insecurity	2.32	1.20	0	5
Number of friends	7.23	4.67	1	37
Age	29.15	1.74	25	34
Male	0.49	0.50	0	1
White	0.71	0.49	0	1
Black	0.19	0.41	0	1
Hispanic	0.17	0.38	0	1
Asian	0.08	0.27	0	1
Income	34,632	38,284	0	920,000
Education	5.67	2.20	1	13
Food stamps	0.24	0.43	0	1

Table 5.8: Sample means.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Political ideology	1						
(2) Childhood trauma	0.07	1					
(3) Openness	0.15	0.08	1				
(4) Conscientiousness	-0.07	-0.07	0.04	1			
(5) Extraversion	0.05	0.02	0.22	0.09	1		
(6) Agreeableness	0.07	0.06	0.28	0.16	0.27	1	
(7) Neuroticism	0.02	0.17	-0.15	-0.12	-0.11	-0.06	1

Table 5.9: Correlation table between political ideology, childhood trauma, and personality traits.

Table 5.10: Ordered probit model of political ideology on the childhood environment variables (jointly)

	Political ideology		
	Coeff.	SE	P-value
Childhood trauma	0.076	0.012	0.000
Neighborhood insecurity	0.034	0.022	0.116
School insecurity	0.004	0.011	0.714
Number of friends	-0.006	0.002	0.000
Age	-0.034	0.004	0.000
Male	-0.101	0.014	0.000
Black	0.073	0.023	0.001
Hispanic	0.096	0.036	0.008
Asian	0.167	0.028	0.000
Income (log)	0.019	0.003	0.000
Education	0.061	0.004	0.000
Food stamps	-0.039	0.030	0.202
Intercept	3.192	0.412	0.000
N		7,642	
$PseudoR^2$		0.012	

Note: Ordered probit model of political ideology (1 = very conservative to 5 = very liberal) on childhood environment indicators and control variables. Descriptive statistics are provided in the Appendix. Standard errors (SE) and P-values are also presented.

Table 5.11: Cross-tabs for ideology and the "openness to experience" personality trait

	Political ideology					
Openness	v. cons.	conservative	middle	liberal	v. liberal	Total
4	1	1	0	0	0	2
5	1	0	5	0	1	7
6	0	3	5	1	0	9
7	6	11	5	1	2	25
8	12	27	45	21	6	111
9	9	53	67	27	9	165
10	29	109	196	57	19	410
11	46	151	308	112	39	656
12	99	369	789	250	80	1,587
13	70	405	906	296	77	1,754
14	121	539	1,228	494	105	2,487
15	81	452	972	460	88	2,053
16	84	490	1,123	671	155	2,523
17	47	209	500	323	110	1,189
18	31	146	338	223	83	821
19	19	65	149	134	65	432
20	16	43	137	120	81	397
Total	672	3,073	6,773	3,190	920	14,628

Pearson chi-squared = 642.6; Pr = 0.000

Table 5.12: Cross-tabs for ideology and the "conscientiousness" personality trait

	Political ideology					
Conscientiousness	v. cons.	conservative	middle	liberal	v. liberal	Total
4	0	1	1	1	0	3
5	1	0	5	6	3	15
6	3	2	18	7	5	35
7	0	10	25	16	8	59
8	6	29	71	46	23	175
9	5	38	103	68	20	234
10	20	85	220	132	40	497
11	25	122	344	165	56	712
12	66	235	639	303	110	1,353
13	60	286	669	291	104	1,410
14	108	468	991	438	119	2,124
15	95	397	954	436	116	1,998
16	92	636	1,243	599	128	2,698
17	67	322	612	288	70	1,359
18	46	213	411	185	49	904
19	40	151	283	140	33	647
20	42	97	209	88	42	478
Total	676	3,092	6,798	3,302	926	14,701

Pearson chi-squared = 187.9; Pr = 0.000

Table 5.13: Cross-tabs for ideology and childhood trauma

	Political ideology					
Childhood trauma	v. cons.	conservative	middle	liberal	v. liberal	Total
0	354	1,630	3,289	1,414	406	7,093
1	194	931	2,224	1,123	327	4,799
2	82	424	1,010	534	150	2,200
3	23	65	155	87	25	355
Total	653	3,050	6,678	3,158	908	14,447

Pearson chi-squared = 67.05; Pr = 0.000

Table 5.14: Ordered probit model of political ideology on childhood trauma

	Political ideology		
	Coeff.	SE	P-value
Childhood trauma	0.076	0.007	0.000
Age	-0.026	0.003	0.000
Male	-0.110	0.010	0.000
Black	0.083	0.022	0.003
Hispanic	0.091	0.021	0.000
Asian	0.140	0.024	0.000
Income (log)	0.015	0.002	0.000
Education	0.045	0.003	0.000
Food stamps	-0.024	0.021	0.261
Intercept	3.22	0.251	0.000
N		13,799	
$PseudoR^2$		0.008	

Note: Ordered probit model of political ideology (1 = v. conservative to 5 = v. liberal) on childhood trauma and control variables. Descriptive statistics are provided in the Appendix. Standard errors (SE) and P-values are also presented.

Table 5.15: Ordered probit model of political ideology on the "big five" personality traits and childhood trauma

	Political ideology		
	Coeff.	*SE*	P-value
Openness	0.064	0.002	0.000
Conscientiousness	-0.036	0.002	0.000
Extraversion	-0.009	0.002	0.000
Agreeableness	0.002	0.003	0.451
Neuroticism	0.012	0.002	0.000
Childhood trauma	0.048	0.007	0.000
Age	-0.019	0.003	0.000
Male	-0.161	0.011	0.000
Black	0.091	0.022	0.000
Hispanic	0.097	0.023	0.000
Asian	0.169	0.024	0.000
Income (log)	0.015	0.002	0.000
Education	0.035	0.003	0.000
Food stamps	-0.036	0.021	0.096
Intercept	2.582	0.298	0.000
N		13,770	
$PseudoR^2$		0.019	

Note: Ordered probit model of political ideology (1 = v. conservative to 5 = v. liberal) on the "big five" personality traits, childhood trauma, and control variables. Descriptive statistics are provided in the Appendix. Standard errors (SE) and P-values are also presented.

Chapter 6

Conclusion

The preceding chapters each provide a perspective into the formation of political preferences and, ultimately, voting behaviour. These separate inquiries into how institutions, economic conditions, and personality may influence political preferences do not represent a definitive account of political preference formation. Rather, they explore data and empirical models and intend to contribute to their respective literatures. The results of these analyses show that the individual effects of these three influences are particularly strong and hold significant predictive power of political preferences. In a general model of political preference formation, the inclusion of institutions, economic conditions, and personality would likely see these variables play a prominent role.

Ideally, data collection in political science and political economy would allow for a full integration of potential influences such as genomic information, personality profiles, socio-economic influences throughout the life course, economic conditions, and institutions. A comprehensive multi-level panel data model would

also allow for mediation analyses to tease out the individual strength and sequential role of each predictor. In the absence of fully integrated data, we are limited to considering the effects of these influences separately. This may, however, lead scholars to consider these effects as additive. But some of these influences on political preference formation may not be independent of each other. For example, institutional variation may influence economic performance [Hall and Gingerich, 2009]; or evolutionary drift could result in varying population genetics and, in turn, influence institutional preferences. This latter reasoning is developed by Chiao and Blizinsky [2009] who report on an association between the global distribution of a particular genotype variant and the presence of collectivist institutions. If this result on culture-gene coevolution stands, than the institutional framework of a society is not independent from its population genetics. Such new research avenues provide exciting opportunities for better understanding our political economy but also raise methodological challenges to current scholarship.

Bearing these—and other necessary caveats—in mind, this thesis makes a number of individual contributions. Chapter 2 introduced a median voter data set that allows for comparing the ideological position of the electoral center across time and across countries. The data set employs the statistics provided by the Comparative Manifesto Project but corrects for stochastic error using work by Benoit, Laver and Mikhaylov [2009] and includes standard errors. This research applies the Kim and Fording [1998] methodology that links party positions with

electoral outcomes to arrive at revealed voter preferences for a large number of democracies. Building on these new data, Chapter 3 found that political preferences are closely related to the salience of particular economic institutions: labour organization, skill specificity, and public sector employment. At the country level, this chapter thus suggested that coordinated market economies move the median voter to the left, whereas liberal market economies move the median voter to the right. Instrumented statistical analyses showed that revealed voter preferences are endogenous to the economic institutions of the political economy. This chapter placed institutions at the heart of voting behaviour and also implies the existence of institutional advantages to partisan politics.

Building on the new US median voter data, Chapter 4 tested the proposition that voters advance a more liberal agenda in prosperous times and shift towards being more conservative in dire economic times. A reference-dependent utility model related economic conditions over time to voting behaviour by way of the demand for public goods and the optimal tax rate. With income growth, the relative demand for public goods increases and the median voter can afford more taxation, as a result the median voter is more likely to vote Democrat. With less income growth, the median voter derives increased marginal utility from personal income—making taxation more painful—and is thus more likely to vote Republican. This chapter linked political preferences to economic business cycles and showed that ideological change is endogenous to economic conditions.

Finally, Chapter 5 turned to individual level observations and presented the largest study to date on the influence of the "big five" personality traits on political preferences. In line with research in political psychology, it was found that "openness to experience" strongly predicts liberal ideology and that "conscientiousness" strongly predicts conservative ideology. The availability of sibling clusters in the data was leveraged to show that these results are also robust to the inclusion of family fixed effects. A variety of childhood experiences were also studied and childhood trauma was found to interact with "openness" in predicting ideology. A further exploration of this triangular relationship using mediation analysis indicated that the openness trait was, in fact, the preeminent influence underlying this relationship. The findings of this chapter provided new evidence for the idea that differences in political preferences are deeply intertwined with variation in the nature and nurture of individual personalities.

Each chapter represented a distinct contribution and provided a different perspective on the formation of political preferences. These different approaches related to the fields of comparative political economy, behavioural economics, and political psychology. Taken together, these perspectives provided some new insights into the complex world of political preference formation and did so by exploring the important role of institutions, economic conditions, and personality.

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